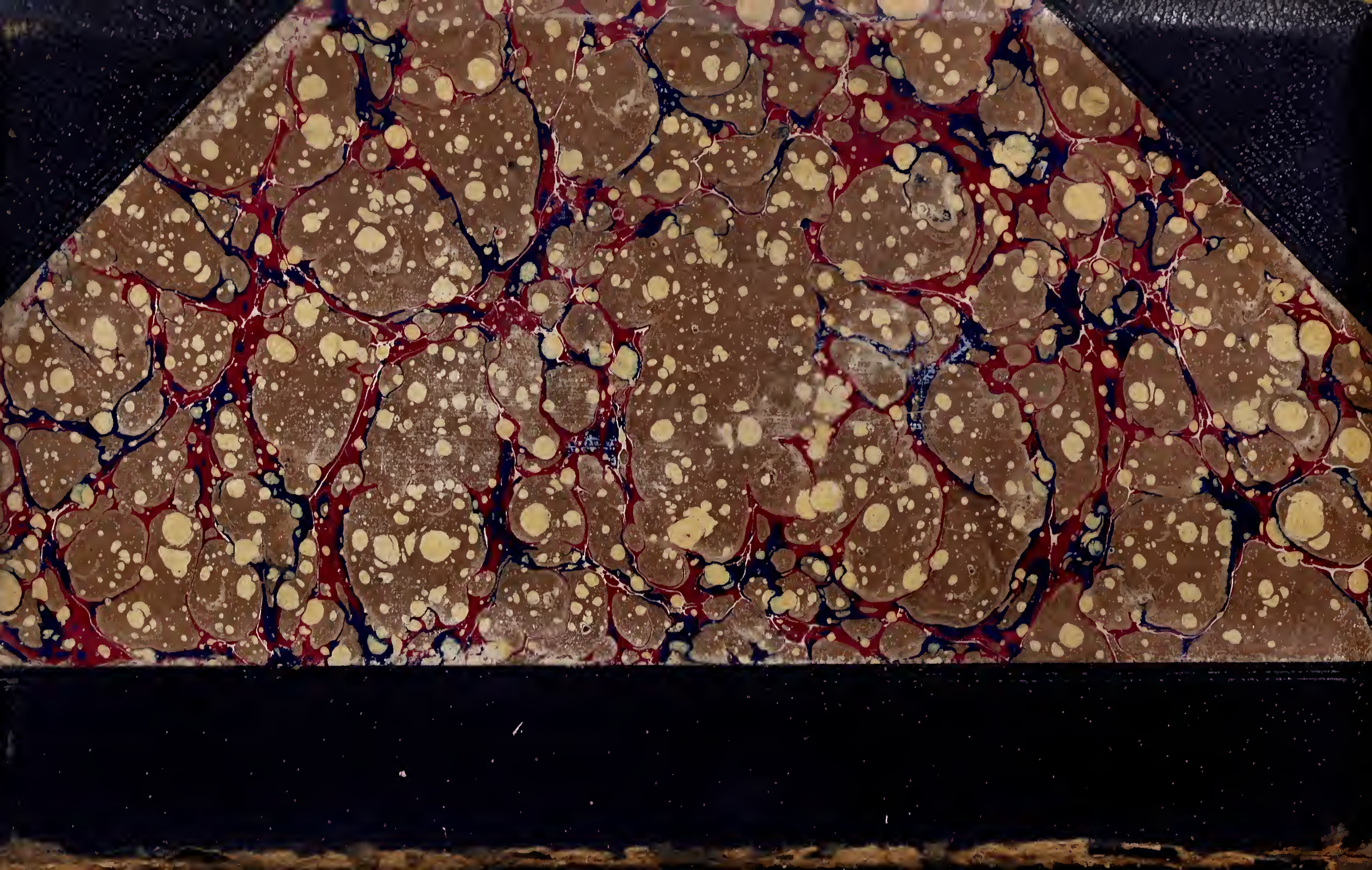

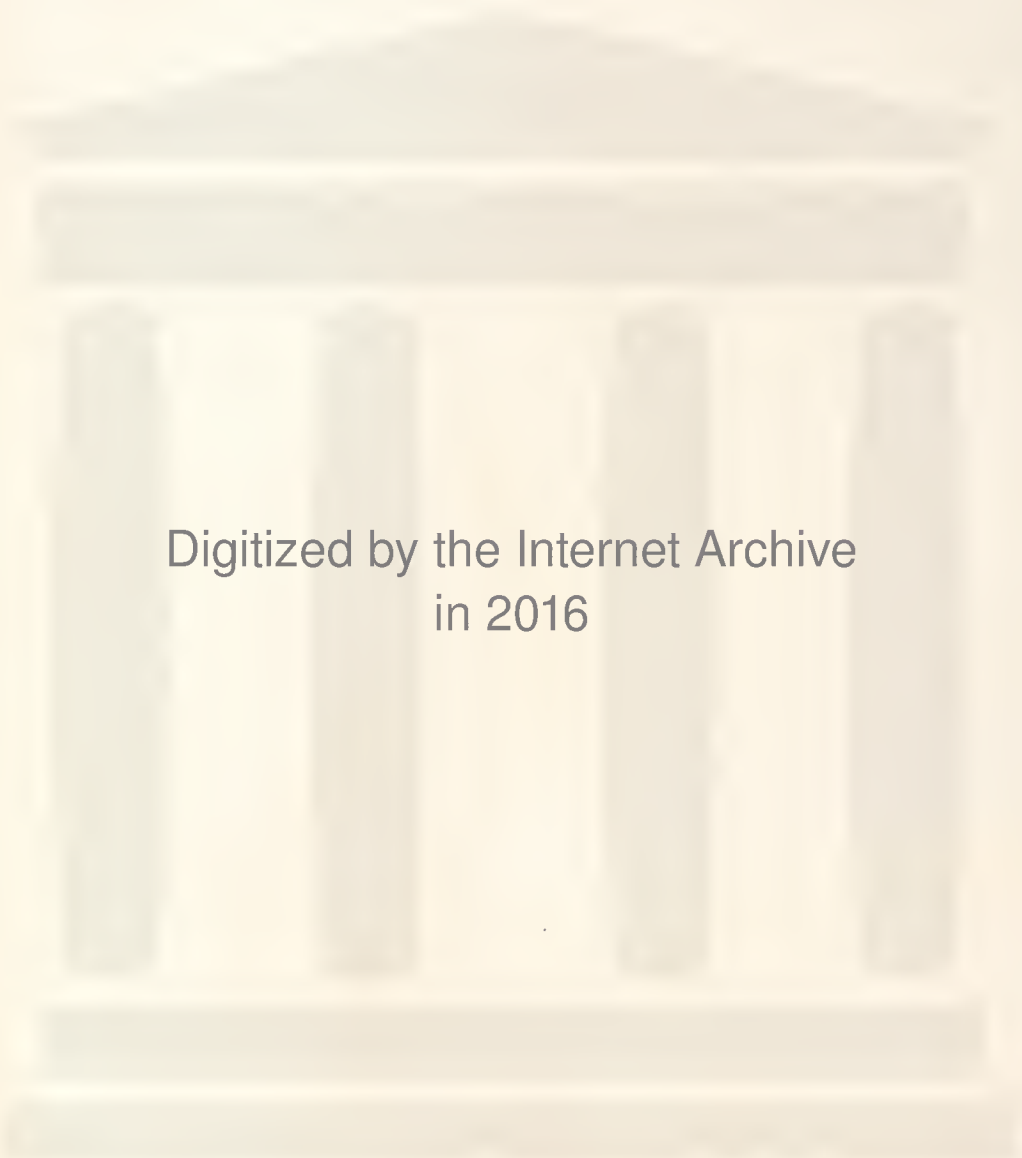

MAIN EXHIBITION BUILDING.

UNITED STATES CENTENNIAL COMMISSION.

INTERNATIONAL EXHIBITION, 1876.

OFFICIAL CATALOGUE

I. DEPARTMENT OF MINING AND METALLURGY.

II. DEPARTMENT OF MANUFACTURES.

III. DEPARTMENT OF EDUCATION AND SCIENCE.

MAIN BUILDING.—PART I.

PHILADELPHIA:
PUBLISHED BY JOHN R. NAGLE AND COMPANY,
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1876.

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THE INTERNATIONAL EXHIBITION OF 1876.

THE Congress of the United States, by an act approved March 3d, 1871, provided that the centennial anniversary of the promulgation of the Declaration of American Independence in Philadelphia should be celebrated in that city "by holding an International Exhibition of Arts, Manufactures, and Products of the Soil and Mine." The preparation of the Exhibition was, by the act, confided to the United States Centennial Commission, composed of a commissioner and alternate commissioner nominated by the governor of each State and Territory, and confirmed by the President of the United States. A subsequent act, approved June 1st, 1872, created the Centennial Board of Finance, charged with the financial conduct of the Exhibition.

A proclamation by the President of the United States, dated July 3d, 1873, announced the International Exhibition, and commended it to all nations. An act of Congress, approved June 5th, 1874, requested the President, in the name of the United States, to invite the governments of foreign nations to participate in the Exhibition. The invitation thus extended was accepted by the governments of

Argentine Republic,
Austria-Hungary,
Belgium,
Brazil,
Canada,
Chili,
China,
Denmark,
Egypt,
France, with Algeria,
Germany,
Great Britain, with colonies, viz.
Queensland,
New Zealand,
New South Wales,
Victoria,
South Australia,
India,
Cape Colony,
Bermuda, and
Jamaica,
Hawaii,
Italy,
Japan,
Mexico,
Netherlands,
Norway,
Orange Free State,
Peru,
Portugal,
Russia,
Spain,
Sweden,
Switzerland,
Tunis,
Turkey,
Venezuela.

The Centennial Commission provided for the classification of the objects to be exhibited in seven departments, which were referred to five exhibition buildings in this manner:

DEPARTMENT.	BUILDINGS.	ACRES COVERED.
I. Mining and Metallurgy, II. Manufactures, III. Education and Science,	Main Building,	21.47
IV. Art,	Art Gallery	1.5
V. Machinery,	Machinery Building,	14.
VI. Agriculture,	Agricultural Building,	10.
VII. Horticulture,	Horticultural Building,	1.5
Total, ...		48.47

The applications for exhibiting space, however, both at home and from abroad, so exceeded the calculations that had been made as to necessitate the erection of annexes supplementing the capacity of each of these buildings. Enumerations of these additional structures will be found on subsequent pages. The classes of objects grouped in the several departments are indicated in the following synopsis of the classification of the Exhibition.

SYNOPSIS OF THE CLASSIFICATION.

LOCATION.	DEPARTMENTS.	CLASSES.	GROUPS.
MAIN BUILDING.	I. MINING AND METALLURGY.	100—109	Minerals, Ores, Stone, Mining Products.
		110—119	Metallurgical Products.
		120—129	Mining Engineering.
	II. MANUFACTURES.	200—205	Chemical Manufactures.
		206—216	Ceramics, Pottery, Porcelain, Glass, etc.
		217—227	Furniture, etc.
		228—234	Yarns and Woven Goods of Vegetable or Mineral Materials.
		235—241	Woven and Felted Goods of Wool, etc.
		242—249	Silk and Silk Fabrics.
		250—257	Clothing, Jewelry, etc.
		258—264	Paper, Blank Books, Stationery.
		265—271	Weapons, etc.
		272—279	Medicine, Surgery, Prothesis.
		280—284	Hardware, Edge Tools, Cutlery, and Metallic Products.
		285—291	Fabrics of Vegetable, Animal, or Mineral Materials.
		292—296	Carriages, Vehicles, and Accessories.
	III. EDUCATION AND SCIENCE	300—309	Educational Systems, Methods, and Libraries.
		310—319	Institutions and Organizations.
		320—329	Scientific and Philosophical Instruments and Methods.
		330—339	Engineering, Architecture, Maps, etc.
		340—349	Physical, Social, and Moral Condition of Man.
ART GALLERY.	IV. ART.	400—409	Sculpture.
		410—419	Painting.
		420—429	Engraving and Lithography.
		430—439	Photography.
		440—449	Industrial and Architectural Designs, etc.
		450—459	Ceramic Decorations, Mosaics, etc.
MACHINERY BUILDING.	V. MACHINERY.	500—509	Machines, Tools, etc., of Mining, Chemistry, etc.
		510—519	Machines and Tools for working Metal, Wood, and Stone.
		520—529	Machines and Implements of Spinning, Weaving, etc.
		530—539	Machines, etc., used in Sewing, Making Clothing, etc.
		540—549	Machines for Printing, Making Books, Paper Working, etc.
		550—559	Motors, Power Generators, etc.
		560—569	Hydraulic and Pneumatic Apparatus.
		570—579	Railway Plant, Rolling Stock, etc.
		580—589	Machinery used in Preparing Agricultural Products.
		590—599	Aerial, Pneumatic, and Water Transportation.
			Machinery, and Apparatus, especially adapted to the requirements of the Exhibition.
AGRICULTURAL BUILDING.	VI. AGRICULTURE.	600—609	Arboriculture and Forest Products.
		610—619	Pomology.
		620—629	Agricultural Products.
		630—639	Land Animals.
		640—649	Marine Animals, Fish Culture, and Apparatus.
		650—662	Animal and Vegetable Products.
		665—669	Textile Substances of Vegetable or Animal origin.
		670—679	Machines, Implements, and Processes of Manufacture.
		680—689	Agricultural Engineering and Administration.
		690—699	Tillage and General Management.
HORTICULTURAL BUILDING.	VII. HORTICULTURE.	700—709	Ornamental Trees, Shrubs, and Flowers.
		710—719	Hot Houses, Conservatories, Graperies.
		720—729	Garden Tools, Accessories of Gardening.
		730—739	Garden Designing, Construction, and Management.

The full text of the classification of the several Departments will be found at the commencement of the enumeration of objects shown in each. The distribution of the departments and buildings through the four volumes of the catalogue, is as follows:

VOLUME I.—DEPARTMENT I. *Mining and Metallurgy*· II. *Manufactures;* III. *Education and Science.* Main Building and Annexes.

VOLUME II.—DEPARTMENT IV. *Art.* Memorial Hall and Annexes.

VOLUME III.—DEPARTMENT V. *Machinery.* Machinery Building and Annexes. Buildings of United States government and foreign governments, of State governments, and of individual exhibitors.

VOLUME IV.—DEPARTMENT VI. *Agriculture;* VII. *Horticulture.* Agricultural and Horticultural Buildings and Annexes.

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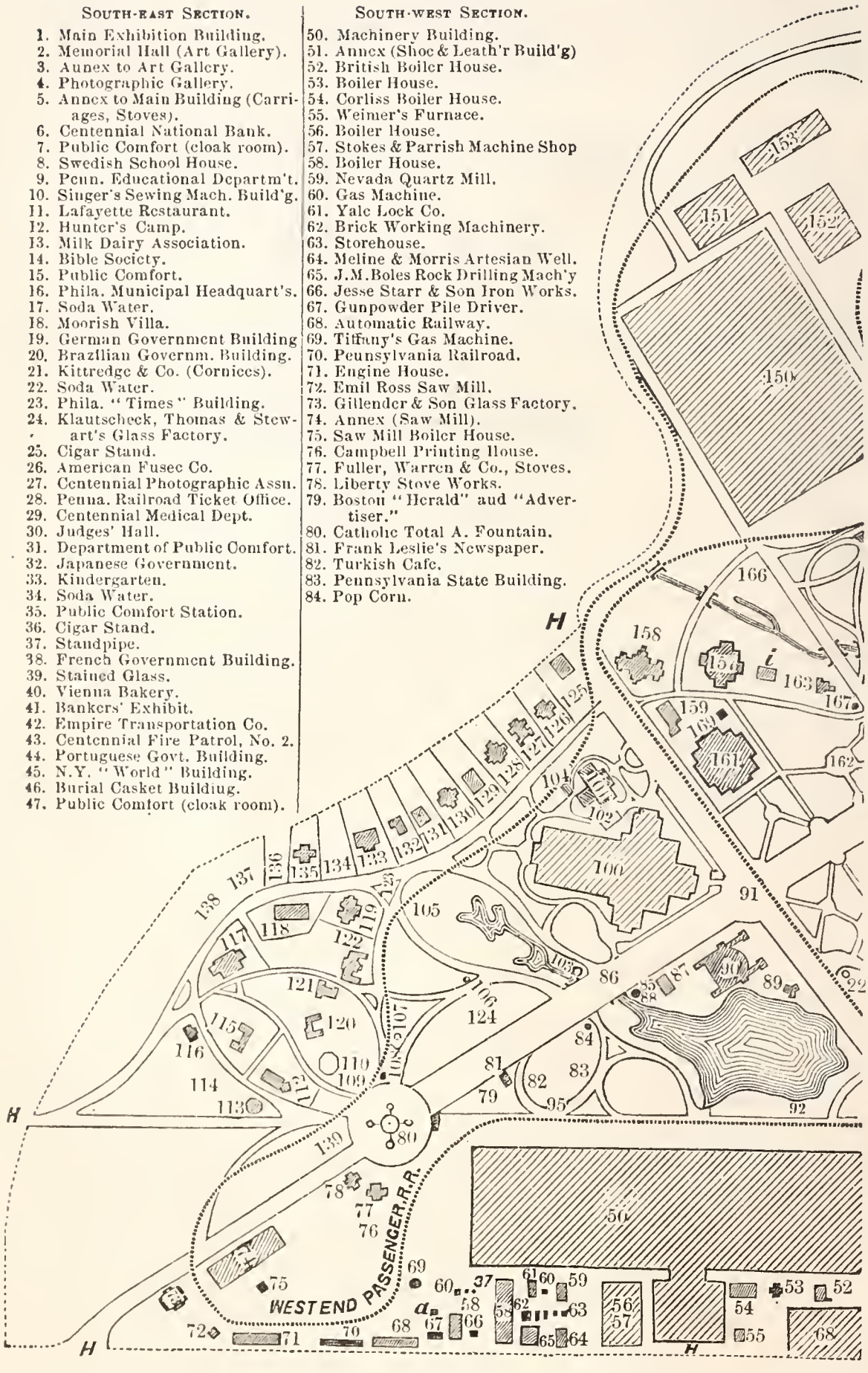
SOUTH-EAST SECTION.

1. Main Exhibition Building.
2. Memorial Hall (Art Gallery).
3. Annex to Art Gallery.
4. Photographic Gallery.
5. Annex to Main Building (Carriages, Stoves).
6. Centennial National Bank.
7. Public Comfort (cloak room).
8. Swedish School House.
9. Penn. Educational Departm't.
10. Singer's Sewing Mach. Build'g.
11. Lafayette Restaurant.
12. Hunter's Camp.
13. Milk Dairy Association.
14. Bible Society.
15. Public Comfort.
16. Phila. Municipal Headquart's.
17. Soda Water.
18. Moorish Villa.
19. German Government Building
20. Brazilian Governm. Building.
21. Kittredge & Co. (Cornices).
22. Soda Water.
23. Phila. "Times" Building.
24. Klautscheck, Thomas & Stewart's Glass Factory.
25. Cigar Stand.
26. American Fusee Co.
27. Centennial Photographic Assn.
28. Penna. Railroad Ticket Office.
29. Centennial Medical Dept.
30. Judges' Hall.
31. Department of Public Comfort.
32. Japanese Government.
33. Kindergarten.
34. Soda Water.
35. Public Comfort Station.
36. Cigar Stand.
37. Standpipe.
38. French Government Building.
39. Stained Glass.
40. Vienna Bakery.
41. Bankers' Exhibit.
42. Empire Transportation Co.
43. Centennial Fire Patrol, No. 2.
44. Portuguese Govt. Building.
45. N.Y. "World" Building.
46. Burial Casket Building.
47. Public Comfort (cloak room).

SOUTH-WEST SECTION.

50. Machinery Building.
51. Annex (Shoe & Leath'r Build'g)
52. British Boiler House.
53. Boiler House.
54. Corliss Boiler House.
55. Weimer's Furnace.
56. Boiler House.
57. Stokes & Parrish Machine Shop
58. Boiler House.
59. Nevada Quartz Mill.
60. Gas Machine.
61. Yale Lock Co.
62. Brick Working Machinery.
63. Storehouse.
64. Meline & Morris Artesian Well.
65. J.M.Boles Rock Drilling Mach'y
66. Jesse Starr & Son Iron Works.
67. Gunpowder Pile Driver.
68. Automatic Railway.
69. Tiffany's Gas Machine.
70. Pennsylvania Railroad.
71. Engine House.
72. Emil Ross Saw Mill.
73. Gillender & Son Glass Factory.
74. Annex (Saw Mill).
75. Saw Mill Boiler House.
76. Campbell Printing House.
77. Fuller, Warren & Co., Stoves.
78. Liberty Stove Works.
79. Boston "Herald" and "Advertiser."
80. Catholic Total A. Fountain.
81. Frank Leslie's Newspaper.
82. Turkish Cafe.
83. Pennsylvania State Building.
84. Pop Corn.



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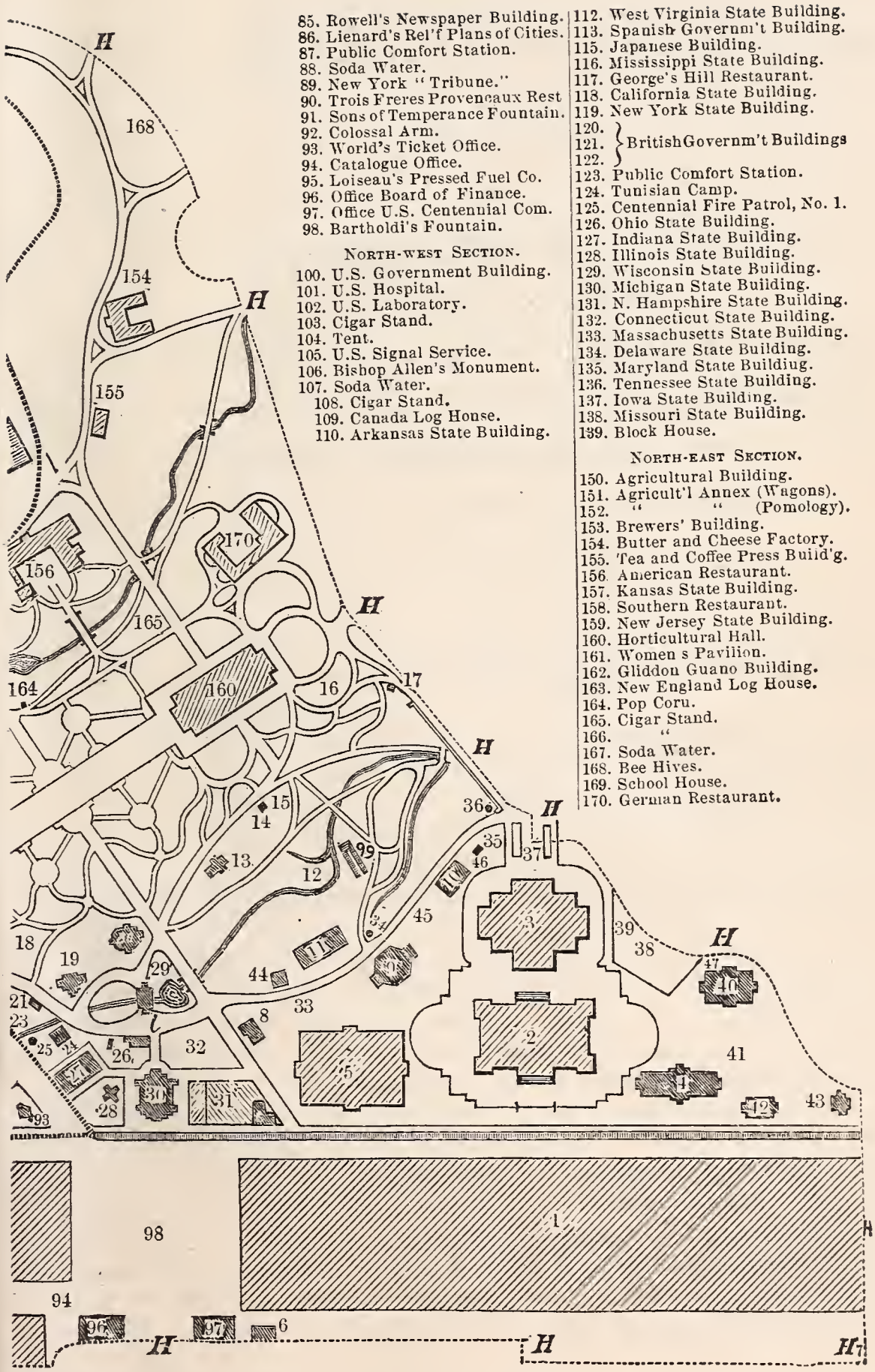


85. Rowell's Newspaper Building.
86. Lienard's Rel'f Plans of Cities.
87. Public Comfort Station.
88. Soda Water.
89. New York "Tribune."
90. Trois Freres Provencaux Rest
91. Sons of Temperance Fountain.
92. Colossal Arm.
93. World's Ticket Office.
94. Catalogue Office.
95. Loiseau's Pressed Fuel Co.
96. Office Board of Finance.
97. Office U.S. Centennial Com.
98. Bartholdi's Fountain.

NORTH-WEST SECTION.

100. U.S. Government Building.
101. U.S. Hospital.
102. U.S. Laboratory.
103. Cigar Stand.
104. Tent.
105. U.S. Signal Service.
106. Bishop Allen's Monument.
107. Soda Water.
108. Cigar Stand.
109. Canada Log House.
110. Arkansas State Building.

112. West Virginia State Building.
113. Spanish Governm't Building.
115. Japanese Building.
116. Mississippi State Building.
117. George's Hill Restaurant.
118. California State Building.
119. New York State Building.
120. } British Governm't Buildings
121. }
122. }
123. Public Comfort Station.
124. Tunisian Camp.
125. Centennial Fire Patrol, No. 1.
126. Ohio State Building.
127. Indiana State Building.
128. Illinois State Building.
129. Wisconsin State Building.
130. Michigan State Building.
131. N. Hampshire State Building.
132. Connecticut State Building.
133. Massachusetts State Building.
134. Delaware State Building.
135. Maryland State Building.
136. Tennessee State Building.
137. Iowa State Building.
138. Missouri State Building.
139. Block House.

NORTH-EAST SECTION.

150. Agricultural Building.
151. Agricult'l Annex (Wagons).
152. " " (Pomology).
153. Brewers' Building.
154. Butter and Cheese Factory.
155. Tea and Coffee Press Build'g.
156. American Restaurant.
157. Kansas State Building.
158. Southern Restaurant.
159. New Jersey State Building.
160. Horticultural Hall.
161. Women s Pavilion.
162. Gliddon Guano Building.
163. New England Log House.
164. Pop Corn.
165. Cigar Stand.
166. "
167. Soda Water.
168. Bee Hives.
169. School House.
170. German Restaurant.

INTERNATIONAL EXHIBITION.

THE MAIN EXHIBITION BUILDING. No. 1.

Size, 1880 by 464 feet.

Engineers and Architects, HENRY PETTIT & JOS. M. WILSON.

Contractor, R. J. DOBBINS.

Wrought and Cast Iron Manufactured by WM. SELLERS & CO., *Moor Iron Works.*

Wrought Iron Furnished by A. & P. ROBERTS, *Pencoyd Rolling Mills.*

Cast Iron Furnished by MORRIS, TASKER, & CO., *Pascal Iron Works.*

Erector of Iron Work, WATSON MANUFACTURING CO.

THE Main Exhibition Building, containing Departments I, II, III of the Exhibition, is in the form of a parallelogram, extending east and west 1880 feet in length, and north and south 464 feet in width.

The larger portion of the structure is one story in height, and shows the main cornice upon the outside at 45 feet above the ground, the interior height being 70 feet. At the centre of the longer sides are projections 416 feet in length, and in the centre of the shorter sides or ends of the building are projections 216 feet in length. In these projections, in the centre of the four sides, are located the main entrances, which are provided with arcades upon the ground floor, and central facades extending to the height of 90 feet.

The East Entrance forms the principal approach for carriages, visitors being allowed to alight at the doors of the building under cover of the arcade. The South Entrance is the principal approach from street cars, the ticket offices being located upon the line of Elm Avenue, with covered ways provided for entrance into the building itself. The Main Portal on the north side communicates with the Art Gallery, and the Main Portal on the west side gives the main passage way to the Machinery and Agricultural Halls.

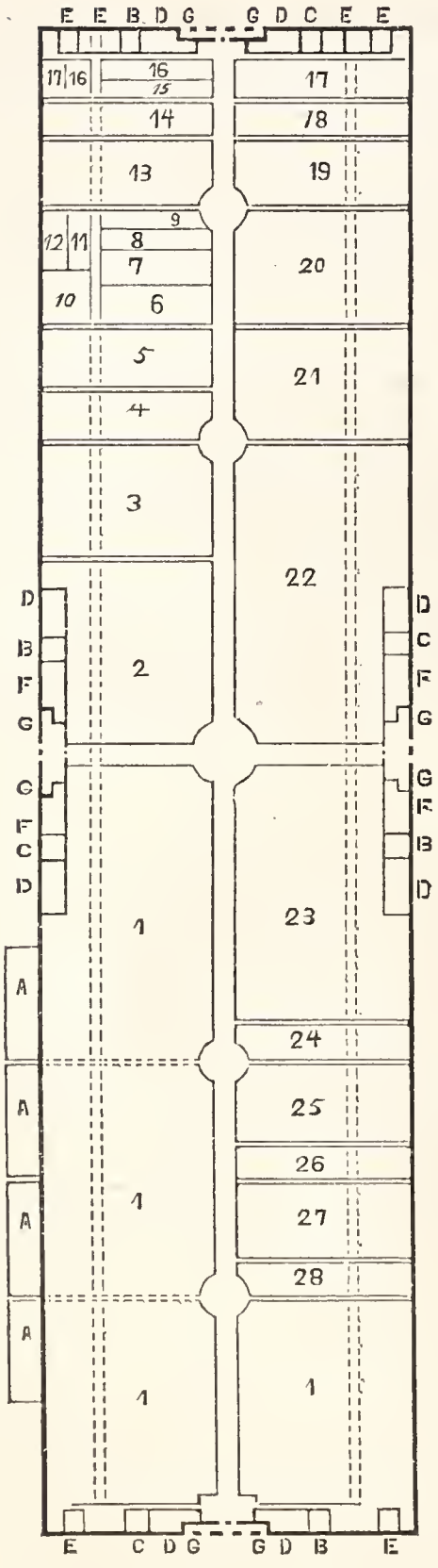
Upon the corners of the building there are four towers, 75 feet in height, and between the towers and the central projections or entrances there is a lower roof introduced, showing a cornice at 24 feet above the ground. In order to obtain a central feature for the building as a whole, the roof over the central part, for 184 feet square, has been raised above the surrounding portion, and four towers, 48 feet square, rising to 120 feet in height, have been introduced at the corners of the elevated roof.

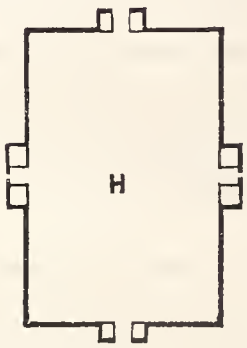
The areas covered are as follows:

	SQUARE FEET.	ACRES.
Ground floor,	872,320	20.02
Upper floors in projections,	37,344	.85
" " in towers,	26,344	.60
	936,008	21.47

MAIN EXHIBITION BUILDING.

Scale, 360 ft. to 1 in.





A *Mineral Annex.*
B *Ladies' Room.*
C *Gentlemen's Room.*
D *Water-closets.*
E *Offices.*
F *Restaurants.*
G *Stairway to Galleries.*
H *Carriage House.*

1. *United States.*
2. *Germany.*
3. *Austria and Hungary.*
4. *Russia.*
5. *Spain.*
6. *Turkey.*
7. *Egypt.*
8. *Denmark.*
9. *Sweden.*
10. *Portugal.*
11. *Tunis.*
12. *Sandwich Islands.*
13. *Japan.*
14. *China.*
15. *Argentine Republic.*
16. *Chili.*
17. *Italy.*
18. *Norway.*
19. *Sweden.*
20. *Australasia, India, and other Colonies.*
21. *Canada.*
22. *Great Britain.*
23. *France and Colonies.*
24. *Switzerland.*
25. *Belgium.*
26. *Brazil.*
27. *Netherlands.*
28. *Mexico.*

Total Length, 1880 ft. *Width, 464 ft.* *Height, 70 ft.*

CLASSIFICATION.

DEPARTMENT I.—MINING AND METALLURGY.

MINERALS, ORES, STONE, MINING PRODUCTS.

CLASS 100.—Minerals, ores, etc. Metallic and non-metallic minerals, exclusive of coal and oil. Collections of minerals systematically arranged; collections of ores and associated minerals; geological collections.

CLASS 101.—Mineral combustibles. Coal; anthracite, semi-bituminous, and bituminous, coal-waste and pressed coal; albertite, asphalt, and asphaltic limestone; bitumen, mineral tar, crude petroleum.

CLASS 102.—Building stones, marbles, slates, etc. Rough, hewn, sawn, or polished, for buildings, bridges, walls, or other constructions, or for interior decoration, or for furniture.

Marble—white, black, or colored—used in building, decoration, statuary, monuments, or furniture, in blocks or slabs not manufactured.

CLASS 103.—Lime, cement, and hydraulic cement, raw and burned, accompanied by specimens of the crude rock or material used, also artificial stone, concrete, beton.

Specimens of lime mortar and mixtures, with illustrations of the processes of mixing, etc. Hydraulic and other cement.

Beton mixtures and results, with illustrations of the processes.

Artificial stone for building purposes, building blocks, cornices, etc.

Artificial stone mixtures, for pavements, walls, or ceilings.

Plasters, mastics, etc.

CLASS 104.—Clays, kaolin, silex, and other materials for the manufacture of porcelain faience, and of glass, bricks, terra cotta and tiles, and fire brick. Refractory stones for lining furnaces, sandstone, steatite, etc., and refractory furnace materials.

CLASS 105.—Graphite, crude and refined; for polishing purposes; for lubricating, electrotyping, photography, pencils, etc.

CLASS 106.—Lithographic stones, hones, whetstones, grindstones, grinding and polishing materials, sand quartz, garnet, crude topaz, diamond, corundum, emery in the rock and pulverized, and in assorted sizes and grades.

CLASS 107.—Mineral waters, artesian well water, natural brines, saline and alkaline efflorescences and solutions. Mineral fertilizing substances, gypsum, phosphate of lime, marls, shells, coprolites, etc., not manufactured.

METALLURGICAL PRODUCTS.

CLASS 110.—Precious metals.

CLASS 111.—Iron and steel in the pig, ingot, and bar, plates and sheets, with specimens of slags, fluxes, residues, and products of working.

CLASS 112.—Copper in ingots, bars, and rolled, with specimens illustrating its various stages of production.

CLASS 113.—Lead, zinc, antimony, and other metals, the result of extractive processes.

CLASS 114.—Alloys used as materials, brass, nickel, silver, solder, etc.

MINING ENGINEERING—MODELS, MAPS, AND SECTIONS.

CLASS 120.—Surface and underground surveying and plotting. Projection of underground work, location of shafts, tunnels, etc. Surveys for aqueducts and for drainage.

Boring and drilling rocks, shafts, and tunnels, etc. Surveys for aqueducts, and for ascertaining the nature and extent of mineral deposits.

Construction. Sinking and lining shafts by various methods, driving and timbering tunnels, and the general operations of opening, stoping, and breaking down ore, timbering, lagging, and masonry.

Hoisting and delivering at the surface, rock, ore, or miners.

Pumping and draining by engines, buckets, or by adits.

Ventilation and lighting.

Subaqueous mining, blasting, etc.

Hydraulic mining, and the various processes and methods of sluicing and washing auriferous gravel and other superficial deposits.

Quarrying.

CLASS 121.—Models of mines, of veins, etc.

UNITED STATES.—STATISTICAL PREFACE.

THE United States of America occupy the entire width of the central portion of North America, between latitude 24° 30′ and 49° north, and from longitude 66° 50′ and 124° 30′ west. They are bounded, north, by New Brunswick, Canada (from which they are separated by the river St. Lawrence and the great lakes), and British Columbia; on the south, by Mexico and the Gulf of Mexico; east, by the Atlantic; and west, by the Pacific Ocean. Their greatest breadth, from Cape Cod, on the Atlantic, to the Pacific, near the parallel of latitude 42 degrees, is about 2600 miles. Their greatest length, from the northern boundary of Maine to Key West, in Florida, is about 1600 miles. Their mean length, from east to west, is about 1600 miles, and from north to south about 1300 miles. Their area, according to calculations founded on the report of the Commissioner of the General Land Office, for 1867, is 3,057,407 square miles, or 1,956,740,480 acres. This, however, is exclusive of the district of Alaska, in the extreme northwest of the continent, purchased from Russia, and comprising 577,390 square miles, or 369,529,600 acres. Including Alaska, the entire area of the United States and territories is 3,634,797 square miles.

Three mountain ranges, the Appalachian chain towards the east, the Rocky Mountains in the centre, and the Sierra Nevada in the west, divide the United States into four great regions. The first of these is the Atlantic slope, or all that portion lying east of the Appalachian or Alleghany range; the second, lying between the Appalachian and the Rocky Mountains, is known as the basin of the Mississippi and Missouri; the third is the country between the Rocky Mountains on the east and the Sierra Nevada on the west; the fourth extends from the Sierra Nevada to the Pacific Ocean, and is known as the Pacific slope.

The Appalachian or Alleghany mountains extend from the State of Mississippi northeast through the States of Alabama, Georgia, Tennessee, North Carolina, Virginia, Pennsylvania, New York, and Vermont, for about 1200 miles, at a variable distance of from 70 to 300 miles from the Atlantic coast, and with an average breadth of about 100 miles. Their mean height is from 2000 to 3000 feet, half of which consists in the elevation of the mountains over the adjacent plains, and the rest in the elevation of these plains above the sea. The White Mountains of New Hampshire, belonging to this chain, reach a height of 6226 feet, and the Black Mountain, of North Carolina, is 6732 feet above the level of the sea. The Rocky Mountains are a prolongation of the Mexican Cordillera, and some of their highest peaks attain to between 12,000 and 15,000 feet above the level of the sea. Their average altitude is about 8500 feet. The Sierra Nevada, or Snowy Mountains, are 10° to 12° west of the Rocky Mountains. Under different names, and with different altitudes, this range extends from the peninsula of lower California to Alaska, some of its passes being about 9000 feet, and its highest summits about 16,000 feet above the level of the sea.

The rivers of the United States are of great magnitude and importance. Of those flowing east and south the principal are the Mississippi and Missouri, which, with their tributaries, the Ohio, Arkansas, Red, Yellowstone, and Nebraska rivers, give to the interior an extent of inland navigation and a facility of communication unequaled on any other continent. Among the principal rivers flowing into the Atlantic, are the Hudson, Delaware, Susquehanna, Potomac, Savannah, and St. Johns. The Columbia, Sacramento, and Colorado flow into the Pacific Ocean. The Mississippi,

Alabama, Colorado (of Texas), and Rio Grande (the last named forming the boundary between Texas and Mexico), empty into the Gulf of Mexico. The area of the water-basins has been estimated as follows: Rivers flowing into the Pacific, 644,040 square miles; into the Atlantic, 488,877; into the Gulf of Mexico, 1,683,325 square miles, of which 1,257,457 are drained by the Mississippi-Missouri rivers. The coast-line on both oceans has a length of about 13,200 miles, excluding the numerous bays and sounds, besides 3600 miles on the great northern lakes.

The following table shows the area and population of each State and Territory:

STATES.	POPULATION IN 1870.	AREA IN SQUARE MILES.
Alabama,	996,992	50,722
Arkansas,	484,471	52,198
California,	560,247	188,981
Colorado,	39,864	104,000
Connecticut,	537,454	4,750
Delaware,	125,015	2,120
Florida,	187,748	58,268
Georgia,	1,184,109	58,000
Illinois,	2,539,891	55,410
Indiana,	1,680,637	33,809
Iowa,	1,194,020	55,045
Kansas,	364,399	81,318
Kentucky,	1,321,011	37,680
Louisiana,	726,915	41,346
Maine,	626,915	35,000
Maryland,	780,894	11,124
Massachusetts,	1,457,351	7,800
Michigan,	1,184,059	56,451
Minnesota,	439,706	83,531
Mississippi,	827,922	47,156
Missouri,	1,721,295	65,350
Nebraska,	122,993	75,995
Nevada,	42,491	104,125
New Hampshire,	318,300	9,280
New Jersey,	906,096	8,320
New York,	4,382,759	47,000
North Carolina,	1,071,361	50,704
Ohio,	2,665,260	39,964
Oregon,	90,923	95,274
Pennsylvania,	3,521,951	46,000
Rhode Island,	217,353	1,306
South Carolina,	705,606	34,000
Tennessee,	1,258,520	45,600
Texas,	818,579	274,356
Vermont,	330,551	10,212
Virginia,	1,225,163	38,348
West Virginia,	442,014	23,000
Wisconsin,	1,054,670	53,924
ORGANIZED TERRITORIES.		
Arizona,	9,658	113,916
Dakota,	14,181	150,932
District of Columbia,	131,700	64
Idaho,	14,999	86,294
Montana,	20,595	143,776
New Mexico,	91,874	121,291
Utah,	86,786	84,476
Washington,	23,955	69,994
Wyoming,	9,118	97,883
TERRITORIES NOT ORGANIZED.		
Alaska,		577,340
Indian,		68,991
Total,	38,558,351	3,602,424

In a country extending through 24° of latitude, and nearly 60 of longitude, the climate varies considerably. In the north, along the British frontier, the winter is very severe; during this season the snow is sufficiently abundant in New England to admit the use of sleighs, and the ice on the rivers strong enough to bear the passage of horses and wagons. As far south as Pennsylvania and New Jersey, the thermometer falls, in winter, below zero; rising, in summer, to nearly 100° Fahr. Along the Atlantic coast, between latitude 41° and 45°, the climate is colder in winter and warmer in summer, by nearly 10°, than in those parts of Europe which lie under the same parallels. Snow, however, rarely falls south of latitude 30°; nor is it frequently seen south of the Potomac, except on mountains. The mean annual temperature of Albany is about 49°; of New York and Cincinnati, about 51°; of Philadelphia, 54°; of Natchez, 65°, and of Cantonment Brooke, in Florida, 72°. The temperature along the Pacific is much higher than in corresponding latitudes on the eastern coast.

The Mississippi valley is very fertile. In the Eastern States there still exist large forests of valuable timber, such as beech, birch, maple, oak, pine, spruce, elm, ash, walnut; and, in the South, live-oak, water-oak, magnolia, palmetto, tulip tree, cypress, etc., remnants of the wooded region which formerly extended over the whole Atlantic slope, but into which great inroads have been made by advancing civilization. Apples, pears, cherries, and plums flourish in the North; peaches, melons, and grapes in the Middle States; pineapples, pomegranates, figs, almonds, and oranges in the South. Maize is grown from Maine to Louisiana, and wheat throughout the Union; tobacco as far north as Connecticut, and in the Western States south of Ohio. There is not much cotton raised north of 37°, though it grows as far north as 39°. Rice is cultivated in South Carolina, Georgia, Louisiana, and as far north as St. Louis, Mo. The sugar-cane grows as high as 33°, but does not thoroughly succeed beyond 31° 30′. The vine and mulberry tree grow in various parts of the Union; oats, rye, and barley throughout the North and the mountainous parts of the South; and hemp, flax, and hops in the Western and Middle States. The following figures, taken from the report of the ninth census (1870), will convey an idea of the extent of the annual productions of agriculture:

Spring wheat,	112,549,733	bushels
Winter wheat,	175,195,893	"
Rye,	16,918,795	"
Indian corn,	760,944,549	"
Oats,	282,107,157	"
Barley,	29,761,305	"
Buckwheat,	9,821,721	"
Rice,	73,635,021	pounds
Tobacco,	262,735,341	"
Cotton,	3,011,996	bales
Peas and beans,	5,746,027	bushels
Irish potatoes,	143,337,473	"
Sweet potatoes,	21,709,824	"
Wine,	3,092,369	gallons
Hay,	27,316,048	tons
Clover seed,	639,657	bushels
Grass seed,	583,188	"
Sugar (from cane),	87,043	hhds
Maple sugar,	28,443,645	pounds
Molasses,	23,564,469	gallons
Dairy Products.—Butter,	314,092,683	pounds
Cheese,	53,492,153	"
Milk sold,	235,500,599	gallons
Wool,	100,102,387	pounds
Wax,	631,129	"
Honey,	14,702,815	"

The same report gives the cash value of farms in the United States at $9,262,803,861; of farming implements and machinery, at $336,878,429; live stock, at $1,325,276,457.

Total estimated value of all farm productions, including betterments and additions to stock, $2,447,538,658. Value of orchard products, $47,335,189; products of market gardening, $26,719,229.

There were, at the same time, 8,690,219 horses, 28,074,582 cattle, 28,477,951 sheep, and 25,184,540 hogs.

Except a few small isolated fields, all the bituminous coal in the United States lies west of the Appalachian chain, where a vast series of coal beds stretch from the mountains west through Ohio, Indiana, and Illinois, parts of Kentucky and Alabama, into the State of Missouri, and as far as two hundred miles beyond the Mississippi. Anthracite coal is found most extensively in Pennsylvania; also in Western Virginia and the eastern portion of Ohio and Illinois. The oil-wells of northwestern Pennsylvania contain apparently inexhaustible stores of mineral oil or petroleum. Numerous salt-springs exist in New York, Virginia, Pennsylvania, and the Western States. Iron is distributed most abundantly through the coal measures in Pennsylvania, Ohio, Virginia, and Tennessee, the ore containing from 25 to 33 per cent. of metal. Iron ore also abounds in the Northwestern States; and that found in one part of Vermont yields 78 per cent. of iron. A large proportion of the ore found in this part of the Union is magnetic. Lead is found in various places, but more especially in Missouri, Wisconsin, and Illinois. In some parts of Wisconsin this ore yields from 60 to 70 per cent. of lead. Large deposits of copper have been found in Michigan, in the Lake Superior region. Gold, in large quantities, and silver, have been found in the States and Territories west of the Rocky Mountains. Gold has also been found in Virginia, the Carolinas, Georgia, and Tennessee. Quicksilver, zinc, manganese, with lime and building stone, are the other chief mineral products. The following figures are from the Statistics of Mining, Table VIII, Report of the Ninth Census (1870):

	VALUE OF PRODUCTS.
Anthracite coal,	$38,495,745
Bituminous coal,	35,029,247
Copper,	5,201,312
Gold, placer mined,	7,266,613
" hydraulic mined,	2,508,531
Quartz, gold and silver bearing,	16,677,508
Iron ore,	13,204,138
Lead,	736,004
Petroleum,	19,304,224

The mechanical and manufacturing establishments of the Union, in 1870, numbered 252,148, using steam-engines of 1,215,711 horse-power and 1,130,431 horse-power in water-wheels, and employing 2,053,996 hands. The amount of capital invested is $2,118,208,769; annual wages, $775,584,343; material used, $2,488,427,242, and the total products $4,232,325,442. The chief manufacturing States are Pennsylvania, New York, Massachusetts, Ohio, Illinois, New Jersey, Connecticut, and Rhode Island.

The importations for the year ending June 30th, 1875, were:

Merchandise,	$533,005,536
Gold and silver,	20,894,217
Total,	$553,899,753

Foreign exports, merchandise,	$14,157,611
Gold and silver,	8,275,013
Total,	$22,432,624

The gold value of domestic exports, during the same period, was $583,141,229.

In the length of miles of railway open to traffic, the United States exceeds all other nations, although in the proportion of miles of railway to miles of area, it ranks below some of the smaller and more densely populated states of Europe. The following figures, from Poor's "Railway Manual," illustrate the growth of the railway system in the United States:

In 1830, there were	. . . . .	23	miles in operation.
" 1840, " "	. . . . .	2,818	" " "
" 1850, " "	. . . . .	9,021	" " "
" 1860, " "	. . . . .	30,635	" " "
" 1870, " "	. . . . .	52,898	" " "
" 1874, " "	. . . . .	72,623	" " "

During the year 1874, the gross earnings were $520,466,016, of which $379,466,935 was for freight, and $140,999,081 for passengers. Net earnings, $189,570,958; dividends paid, $67,042,942.

The government of the United States is, by the Constitution, intrusted to three separate authorities, the executive, the legislative, and the judicial. The executive power is vested in a President, who is elected every four years, and is eligible for re-election. The legislative power is vested in two houses, the Senate and the House of Representatives, the President having a veto power, which may be overcome by a two-thirds vote of both houses. Two senators from each State are elected by the legislature thereof, for the term of six years; and representatives are chosen in each State, by popular vote, for two years. The number of Representatives for each State is allotted in proportion to its population, one for each 135,239.

The supreme judicial authority is vested in a Chief Justice and eight Associate Justices, who are appointed for life by the President, by and with the consent of the Senate.

The government of each State is on the same model as that of the general government. There is a governor chosen by popular vote, and a State legislature, similarly chosen, composed of two houses. Each State also has a constitution which prescribes its form of government.

The following statistics apply to the army and navy of the United States in 1875: The army consisted, July 1st, 1875, of 2204 commissioned officers, and 25,000 enlisted men; the navy of 173 vessels, with an armament of 1282 guns, 8500 men, 1254 commissioned, and 490 non-commissioned officers on the active list.

The postal service is conducted by the general government. During the fiscal year ending June 30th, 1875, it carried 601,921,520 letters, 117,215,850 stamped wrappers, 13,956,750 newspapers, and 31,094,500 postal cards. The money orders amounted to $75,425,854.

The telegraph lines belong to private corporations. Their total length, in January, 1875, was 75,000 miles; length of wires, 165,000 miles; number of offices, 6172; number of messages transmitted during the year 1874, 13,700,000.

Education is conducted by the separate States. In general the primary schools are supported by a property tax, and nearly all the States have school funds in addition, the income of which is distributed among the towns in proportion to the number of pupils educated. The gifts with which, during late years, private individuals have endowed institutions of learning, prove a growing appreciation of the claims of the higher education.

The following statistics are collated from the report of the ninth census, 1870:

PUBLIC SCHOOLS.

NUMBER OF SCHOOLS.	TEACHERS EMPLOYED.			PUPILS IN ATTENDANCE.		
	MALE.	FEMALE.	TOTAL.	MALE.	FEMALE.	TOTAL.
125,059	74,174	109,024	183,198	3,120,052	3,108,008	6,228,060

The schools "Not Public" are arranged under two headings: "Classical, Professional, and Technical," and "Other Schools."

"NOT PUBLIC" SCHOOLS (Classical, Professional, and Technical).

NUMBER.	TEACHERS.			PUPILS.		
	MALE.	FEMALE.	TOTAL.	MALE.	FEMALE.	TOTAL.
Classical, etc., 2,545	7,766	5,001	12,767	148,810	106,380	255,190
Other Schools, 14,025	11,389	13,688	25,077	353,134	373,554	726,688

INCOME.

	PUBLIC.	NOT PUBLIC.	
		CLASSICAL, PROFESSIONAL, AND TECHNICAL.	OTHERS.
From Taxation of Public Funds, ...	$58,855,507	$2,320,250	$570,282
" Endowments, ...	144,533	3,356,003	163,249
" Other Sources, including Tuition, .	5,030,633	11,999,654	12,962,615
	$64,030,673	$17,675,907	$13,696,146

The total number of libraries returned was 163,353, containing 44,539,184 volumes. Of these, 107,673 were private libraries, containing 25,571,503 volumes. In the opinion of the superintendent of the census, these results are "manifestly far below the truth."

The newspaper and periodical press comprised, in 1875, 7870 publications, divided as follows: Daily, 1718; tri-weekly, 80; semi-weekly, 107; weekly, 5957; bi-weekly, 24; semi-monthly, 106; monthly, 802; bi-monthly, 8; quarterly, 68.

"STAR" ALPACA BRAIDS.

S. B. & M. FLEISHER,

MANUFACTURERS, PHILADELPHIA.

WHY ARE THEY THE BEST?

ANSWER:

As a strong and conclusive evidence of the superior quality of the "STAR" ALPACA BRAIDS, is the preference that is given them over all competitive makes.

Having been subjected to rigid tests for the past ten years, and wherever introduced, they at once became the desired article.

They are made of the very best materials, with the greatest care and efficient workmanship, and upon the most improved machinery.

With these appliances, and a determination to go ahead, the manufacturers have made the "STAR" Alpaca Braids the most popular Braid of the country.

First Prize, Silver Medal, Franklin Institute, Philada., 1874.

First Prize, Silver Medal, Maryland Institute, Baltimore, 1874.

First Prize, Silver Medal, Industrial Exposition, Cinn., 1875.

For Sewing Machines and Hand Sewing

USE

STRONG, SMOOTH, AND ELASTIC.

CLARK'S TRADE O.N.T. MARK SPOOL COTTON.

SUM CORD in all Nos. from 8 to 100.

(WOUND ON WHITE SPOOLS.)

GEORGE A. CLARK, SOLE AGENT.

IT IS

The Best and Most Popular Thread of the age.

GEORGE A. CLARK & BRO.,

SOLE AGENTS IN AMERICA,

Nos. 337 and 339 Canal Street, New York.

Sub-agency, 8 Strawberry St., Philadelphia.

CHENEY BROTHERS,

Silk Manufacturers,

Mills at Hartford and South Manchester

CONNECTICUT.

SALESROOMS, { **477 BROOME ST., NEW YORK,**
19 FRANKLIN ST., BOSTON.

GROS GRAIN DRESS SILKS in Black and Colors of all Shades.

FIGURED AND TWILLED SILKS for the Millinery Trade.

FLORENTINES AND MARCELLINES, of all colors, qualities, and widths, for the use of Manufacturers of Parasols, Hats, Caps, and Furs.

SILK HANDKERCHIEFS AND MUFFLERS, Plain or with Woven or Printed Borders.

SILK FLAGS of various sizes, from 7 x 10 to 30 x 48 inches, hemmed and boxed in dozens for the trade.

BONNET RIBBONS, Black and Colored, of all widths and shades.

SASH AND BELT RIBBONS.

MACHINE TWIST AND SEWING SILK.

ORGANZINES, TRAMS, AND FINE PATENT SPUN SILKS, for Silk Mixture, Cassimeres, and for all other fabrics in which Silk is used.

Particular attention given to orders for special kinds of Silk used by manufacturers.

Specimens of all the above-mentioned fabrics and threads can be seen in the show-case of **Cheney Brothers,** in the American Silk Department of the Centennial Exhibition in the Main Building.

UNITED STATES.

Minerals, Ores, Stone, Mining Products.

1 **Cambria Iron and Steel Co., Johnstown, Pa.** T 65.

a Carbonate, fossil, and hematite ores from Johnstown, Frankstown, Marklesburg, Yellow Creek, Levant, Henrietta, and Springfield mines; specular, magnetic, red hematite, Lake Superior, and Lake Champlain ores; manganiferous Iron Mountain ores. 100

b B, C, D, and E, coal from Johnstown and Bennington mines; Belgian, pit, and oven coke. 101

c Lime flux from Birmingham, Hollidaysburg, Henrietta, and Ganister mines. 103

2 **Wharton, Joseph, Camden, N. J.**—Nickel ores. T 63. 100

3 **Sharswood, Wm., Philadelphia, Pa.**—Suite of minerals and salts, illustrating the chemistry and mineralogy of cerium, lanthanum, and didymium. T 71. 100

4 **Hatch, John, San Francisco, Cal.**—Minerals of the Pacific states and territories, Mexico, Central and South America, China, Japan, etc. T 67. 100

5 **Barton, Chas., Philadelphia, Pa.**—Ores from "Blazing Star" silver mine, Colorado. T 71. 100

6 **Adams, J. Howe, Philadelphia, Pa.**—Ore from "Blue Jacket" silver mine, Montana district, Colorado. T 71. 100

7 **Benton, Caroline C., Philadelphia, Pa.**—Iron ores from St. Lawrence and Lewis counties, N. Y. T 71. 100

8 **Foote, A. E., Philadelphia, Pa.**—Collection of minerals; elementary collection of minerals for students. T 71. 100

9 **Cleveland Rolling Mill Co., Cleveland, Ohio.**—Ores. T 60. 100

10 **Holland, James M., Denver, Col.**—Ores of gold, silver, lead, and tellurium, mined in Colorado. T 69. 100

11 **Wyoming Historical and Geological Society, Wilkesbarre, Pa.**—Fossils from the anthracite coal measures of Wyoming Valley, Pa. T 70. 100

12 **Cook, Isaac, St. Louis, Mo.**—Lead ores from Washington county, Mo. T 68. 100

13 **Port Henry Iron Ore Co., New York, N. Y.**—Magnetic iron ores. T 71. 100

14 **Witherbee, Sherman, & Co., Port Henry, N. Y.**—Magnetic iron ore. T 71. 100

15 **Black Band Iron Co., Marietta, Ohio.**—Black band, red hematite, and other iron ores. V 63. 100

16 **Brown & Co., Wayne Iron and Steel Works, Pittsburgh, Pa.**—Ores. T 62. 100

17 **Lucy Furnace Co., Pittsburgh, Pa.**—Iron ores. T 66. 100

18 **Providence Franklin Society, Providence, R. I.**—Minerals and geological specimens from Rhode Island. T 70. 100

19 **Blanchard & Lippitt, Hartford, Conn.**—Brown hematite iron ore from Lakeville, Conn. T 70. 100

20 **Hussey & Howe Mining Co., Plattsburgh, N. Y.**—Blue magnetic iron ore (martite); black magnetic iron ore. T 69. 100

21 **Alexander, John S., Philadelphia, Pa.**—Collection of minerals. T 70. 100

22 **Passaic Zinc Co., Passaic, N. J.**—Zinc ores. T 63. 100

23 **Magnetic Iron Co., Philadelphia, Pa.**—Bessemer ores; minerals from Carter county, Tenn. T 69. 100

24 **Crab Orchard Iron Co., Philadelphia, Pa.**—Magnetic Bessemer iron ores from Crab Orchard, Tenn. T 69. 100

25 **Herr, Jos. C., Philadelphia, Pa.**—Hematite iron ores, manganese, and baryta from French Broad River, Cocke county, Tenn. T 69. 100

26 **Davis, O. W., jr., Bangor, Maine.**—Katahdin ores (limonite). T 69. 100

27 **Thomas Iron Co., Hokendauqua, Pa.**—Iron ore. T 64. 100

28 **Lehigh Zinc Co., Bethlehem, Pa.**—Zinc ores and minerals from zinc mines. T 64. 100

29 **Russell, Jesse, Boston, Mass.**—Iron ore. T 68. 100

30 **Stockbridge Iron Co., New Bedford, Mass.**—Iron ore from West Stockbridge and Richmond, Mass. T 70. 100

31 **Dexter & Co., New York, N. Y.**—Mica from North Carolina. T 72. 100

32 **Murrey Mining Co., Detroit, Mich.**—Native copper, etc. V 67. 100

33 **Shalter, R. M., Carrick Furnace,** Franklin county, Pa.—Iron ore. T 63. 100

34 **Shelley Iron Co., Shelley Iron Works, Ala.**—Iron ores. T 71. 100

35 **Rockhill Iron and Coal Co., Philadelphia, Pa.**—Iron ores. T 72. 100

36 **Tecumseh Iron Co., Tecumseh, Ala.**—Iron ore. T 70. 100

37 **New River Railroad, Mining, and Manufacturing Co. of Virginia, Philadelphia, Pa.**—Iron ores and other minerals. T 50. 100

Minerals, Ores, Stone, Mining Products.

38 Lackawanna Iron and Coal Co., Scranton, Pa.—Iron ores. T 64. 100

39 Lee, Alfred S., Richmond, Va.—Manganese and iron ore and pure silica from Amherst county, Va. T 64. 100

40 Lake Superior Iron Co., Marquette county, Mich.—Iron ore. T 70. 100

41 Kentucky Geological Survey.—Collection illustrating the geology and mineral resources of Kentucky. V 70. 100

42 Allen, Oliver, Mumford, N. Y.—Petrified wood, leaves, ferns, etc., found on his premises. T 72. 100

43 Vesuvius Furnace, Etna Iron Works, Ironton, Ohio.—Iron ore. T 68. 100

44 Etna Furnace, Etna Iron Co., Hanging Rock, Ohio.—Iron ore. T 68. 100

45 Blanche Furnace, Etna Iron Works, Ironton, Ohio.—Iron ores. T 68. 100

46 Hecla Iron and Mining Co., Ironton, Ohio.—Iron ores. T 68. 100

47 Monitor Furnace Co., Ironton, Ohio.—Iron ores. T 68. 100

48 Grant Furnace, W. D. Kelley & Sons, Ironton, Ohio.—Iron ores. T 68. 100

49 Center Furnace, W. D. Kelley & Sons, Ironton, Ohio.—Iron ores. T 68. 100

50 Howard Furnace, Charcoal Iron Co., Ironton, Ohio.—Iron ores. T 68. 100

51 Buckhora Furnace, Charcoal Iron Co., Ironton, Ohio.—Iron ores. T 68. 100

52 Olive Furnace, Campbell, McGugin, & Co., Ironton, Ohio.—Iron ores. T 68. 100

53 Lawrence Furnace Co., Ironton, Ohio.—Iron ores. T 68. 100

54 Pine Grove Furnace, Means, Kyle, & Co., Hanging Rock, Ohio.—Iron ores. T 68. 100

55 Ohio Furnace, Means, Kyle, & Co., Hanging Rock, Ohio.—Iron ores. T 68. 100

56 Washington Furnace, Union Iron Co., Portsmouth, Ohio.—Iron ores. T 68. 100

57 Scioto Furnace, L. C. Robinson & Co., Portsmouth, Ohio.—Iron ores. T 68. 100

58 Bloom Furnace, John Paul & Co., Portsmouth, Ohio.—Iron ores. T 68. 100

59 Clinton Furnace, W. I. Bell, Wheelersburg, Ohio.—Iron ores. T 68. 100

60 Buckeye Furnace Co., Jackson, Ohio.—Iron ores. T 68. 100

61 Cambria Furnace, D. Lewis & Co., Samsonville, Ohio.—Iron ores. T 68. 100

62 Jackson Furnace, L. P. N. Smith's Heirs, Sciotoville, Ohio.—Iron ores. T 68. 100

63 Jefferson Furnace Co., Oak Hill, Ohio.—Iron ores. T 68. 100

64 Orange Furnace, Orange Iron Co., Jackson, Ohio.—Iron ores. T 68. 100

65 Star Furnace Co., Jackson, Ohio.—Iron ores. T 68. 100

66 Huron Furnace, Huron Iron Co., Jackson, Ohio.—Iron ores. T 68. 100

67 Tropic Furnace Co., Jackson, Ohio.—Iron ores. T 68. 100

68 Globe Furnace, Globe Iron Co., Jackson, Ohio.—Iron ores. T 68. 100

69 Fulton Furnace, Globe Iron Co., Jackson, Ohio.—Iron ores. T 68. 100

70 Wellston Twin Furnaces, Wellston Coal and Iron Co., Wellston, Ohio.—Iron ores. T 68. 100

71 Lincoln Furnace, I. M. McGhee's Estate, Rud's Mills, Ohio.—Iron ores. T 68. 100

72 Richland Furnace Co., Richland P. O., Ohio.—Iron ores. T 68. 100

73 Eagle Furnace, L. C. Damarin, & Co., Rud's Mills, Ohio.—Iron ores. T 68. 100

74 Hope Furnace, L. C. Damarin & Co., Portsmouth, Ohio.—Iron ores. T 68. 100

75 Hamden Furnace, L. C. Damarin & Co., Portsmouth, Ohio.—Iron ores. T 68. 100

76 Vinton Furnace, Bancroft, Rader, & Co., Vinton Station, Ohio.—Iron ores. 100

77 Keystone Furnace Co., Portsmouth, Ohio.—Iron ores. T 68. 100

78 Monroe Furnace, Union Iron Co., Portsmouth, Ohio.—Iron ores. T 68. 100

79 Latrobe Furnace, Bundy & Cobb, Berlin Cross Roads, Ohio.—Iron ores. T 68. 100

80 Logan Furnace Co., Logan county, Ohio.—Iron ores. T 68. 100

81 Union Furnace, Brooks & Hueston, Haydensville, Ohio.—Iron ores. T 68. 100

82 Mount Savage Furnace, Lexington and Carter county Mining and Manufacturing Co., Lexington, Ky.—Iron ores. T 68. 100

83 Buffalo Furnace, Culbertson, Earhart, & Co., Greenupsburg, Ky.—Iron ores. T 68. 100

84 Hunnewell Furnace, Eastern Kentucky Railway Co., Riverton, Ky.—Iron ores. T 68. 100

85 Pennsylvania Furnace, Eastern Kentucky Railway Co., Riverton, Ky.—Iron ores. T 68. 100

86 Charlotte Furnace Co., Riverton, Ky.—Iron ores. T 68. 100

87 Laurel Furnace, Robt. Scott & Co., Riverton, Ky.—Iron ores. T 68. 100

88 Gallia Furnace, Norton, Campbell, & Co., Portsmouth, Ohio.—Iron ores. T 68. 100

89 Raccoon Furnace, Raccoon Mining and Manufacturing Co., Riverton, Ky.—Iron ores. T 68. 100

90 Tygert's Valley Mining Co., Riverton, Ky.—Section of iron ore. T 68. 100

91 Bellefonte Furnace, Means, Russell, & Means, Ashland, Ky.—Iron ores. T 68. 100

92 Buenavista Furnace, Means & Co., Ashland, Ky.—Iron ores. T 68. 100

93 Trigg Furnace, D. Hillman & Sons, Empire Iron Works, Ky.—Iron ores. T 68. 100

94 Center Furnace, D. Hillman & Sons, Empire Iron Works, Ky.—Iron ores. T 68. 100

95 Shaw, Thomas Ogg, Providence, R. I.—Mineral from Wyoming Territory. T 50. 100

96 Hanging Rock Iron Region, Ironton, Ohio.—Iron ores. T 68. 100

Minerals, Ores, Stone, Mining Products.

97 Traber & Aubery, Cincinnati, Ohio. —Iron ores from twenty-five states and territories. T 68. 100

98 State of Alabama.—Specimens of the minerals of the State. V 35. 100

99 Cooper, Hewitt, & Co., New York, N. Y. T 66.
a Iron ores. 100
b Fuels. 101

100 Ohio Coal Co., Marietta, Ohio. V 63.
a Coal. 100
b Coke. 101

101 Rhodes & Co., Cleveland, Ohio. T 71.
a Lake Superior iron ores. 100
b Massillon Ohio coals. 101

102 Poplar Creek Mineral Railroad Co., Philadelphia, Pa. T 69.
a Iron ores, etc., from Anderson county, Tenn. 100
b Coal from Anderson county, Tenn. 101

103 Durham Iron Co., Riegelsville, Pa. T 64.
a Ores. 100
b Fuel. 101

104 Glendon Iron Co., Easton, Pa. T 64.
a Iron ores. 100
b Fuel. 101

105 Uhler, Peter, Easton, Pa. T 64.
a Ores. 100
b Fuel. 101

106 Keystone Iron Co., Easton, Pa. T 64.
a Ores. 100
b Fuel. 101

107 Northampton Furnace, worked by the Bethlehem Iron Co., Bethlehem, Pa. T 64.
a Iron ores. 100
b Fuel. 101

108 Lehigh Iron Co., Allentown, Pa. T 64
a Iron ore. 100
b Coal. 101

109 Emaus Iron Co., Allentown, Pa. T 64.
a Iron ore. 100
b Fuel. 101

110 Millerstown Iron Co., Allentown, Pa. T 64.
a Iron ore. 100
b Fuel. 101

111 Allentown Rolling Mill Co., Allentown, Pa. T 64.
a Ores. 100
b Fuel. 101

112 Carbon Iron Co., Parryville, Pa. T 64.
a Iron ore. 100
b Fuel. 101

113 Philadelphia and Reading Coal and Iron Co., Philadelphia, Pa. T 72.
a Iron ores. 100
b Coals for smelting and steam purposes. 101

114 Grand Tower Mining, Manufacturing, and Transportation Co., Grand Tower, Ill. T 68.
a Ores. 100
b Fuel. 101

115 Ironton Furnace Iron and Steel Co., Ironton, Ohio. T 68.
a Iron ores. 100
b Bituminous coal. 101

116 Belfont Furnace, Belfont Iron Works, Ironton, Ohio. T 68.
a Iron ores. 100
b Bituminous coals. 101

117 Ophir Furnace Co., Jackson, Ohio. T 68.
a Iron ores. 100
b Jackson county stone coal. 101

118 Norton Iron Works, Ashland, Ky. T 68.
a Iron ores. 100
b Coals and coke. 101

119 Ashland Furnace, Lexington and Big Sandy Railroad Co., Ashland, Ky. T 68.
a Iron ores. 100
b Coals. 101

120 Powel, Robert Hare, & Co., Philadelphia, Pa. X 67.
a Iron ore from Huntingdon county, Pa. 100
b Semi-bituminous coal from Powelton mines. 101

121 Union Iron Co. of Buffalo, Buffalo, N. Y. T 64.
a Iron ores. 100
b Limestone. 103

122 Woodstock Iron Co., Anniston, Ala. T 63.
a Iron and manganese ores. 100
b Limestone. 103

123 Sancon Iron Co., Hellertown, Pa. T 64.
a Hematite and magnetic ore. 100
b Limestone. 103

124 Andrews, Hitchcock, & Co., Cleveland, Ohio. V 61 to 64.
a Lake Superior iron ores. 100
b Brier Hill coal. 101
c Limestone. 103

125 Duncan, John W., Philadelphia, Pa. T 72.
a Iron ores. 100
b Clays. 104

126 Penn Steel and Iron Co., Clintonville, N. Y. T 63.
a Iron ore. 100
b Graphite ore. 105

127 Thomas, W. H. B., Mount Holly, N. J. T 71.
a Minerals. 100
b Marls for fertilizing purposes; mineral waters from New Jersey. 107

128 Myers, A. J., Shenandoah Alum Springs, Va. T 67.
a Minerals, ores. 100
b Mineral spring waters, chalybeate, iron, and sulphur waters. 107

129 Crane Iron Co., Catasauqua, Pa. T 64.
a Hematite and magnetic iron ores. 100
b Fuel. 101
c Limestone. 103

130 Carter, W. T., & Co., Redington, Pa. T 64.
a Iron ores. 100
b Coal. 101
c Limestone. 103

131 Lehigh Valley Iron Co., Copley, Pa. T 64.
a Hematite and magnetic ore. 100
b Fuel. 101
c Limestone. 103

132 Riverside Iron Works, Wheeling, W. Va. T 64.
a Iron ore. 100
b Coke. 101
c Limestone. 103

Minerals, Ores, Stone, Mining Products.

133 Alice Furnace, Etna Iron Works, Hanging Rock, Ohio. T 68.
- *a* Iron ores. 100
- *b* Bituminous coal and coke. 101
- *c* Limestone. 103

134 Hanging Rock Iron Region Furnaces, Charles Campbell, Commissioner, Ironton, Ohio. T 69.
- *a* Iron ores. 100
- *b* Cinders, bituminous coals. 101
- *c* Limestone. 103
- *d* Fire clay. 104

135 Tuscarawas Coal and Iron Co., Cleveland, Ohio. T 71.
- *a* Iron ores. 100
- *b* Coal. 101
- *c* Limestone. 103
- *d* Sand, fire clay. 104

136 Mount Vernon Furnace, Hiram Campbell & Sons, Ironton, Ohio. T 68.
- *a* Iron ores. 100
- *b* Bituminous coals. 101
- *c* Limestone. 103
- *d* Fire clay. 104

137 Milton Furnace and Coal Co., Wellston, Ohio. T 68.
- *a* Iron ores. 100
- *b* Coals. 101
- *c* Limestone. 103
- *d* Fire clay. 104

138 Keim, Beverley R., Kansas City, Kansas. B 67.
- *a* Minerals, fossils, and petrifactions from line of Kansas Pacific Railroad. 100
- *b* Birds from line of Kansas Pacific Railroad. 635
- *c* Animals from line of Kansas Pacific Railroad. 637

139 State of Wisconsin. V 60.
- *a* Minerals, soils, etc. 100
- *b* Building stone. 102
- *c* Sands, gravel. 104

140 State of Ohio (by F. W. Green). W 63.
- *a* Minerals, ores. 100
- *b* Stone. 102
- *c* Clay, etc. 104

141 State of New Jersey (by Geo. H. Cook, State Geologist, New Brunswick, N. J.). T 70.
- *a* Iron, zinc, and copper ores; minerals, geological suite. 100
- *b* Building stones. 102
- *c* Clays and sands. 104
- *d* Fertilizers. 107

142 State of Indiana (by E. T. Cox, State Geologist). V 57.
- *a* Hydrated brown oxide iron ores. 100
- *b* Bituminous and cannel coal from various mines. 101
- *c* Marble of various colors, oölitic building stone, limestone, sandstone, limestone flags, hydraulic stone. 102
- *d* Hydraulic cement, caustic lime. 103
- *e* Fire, white porcelain, and potters' clay; sand. 104

143 State of Michigan (Jay A. Hubbell, Houghton, Mich., Superintendent of Mineral Department). V 67.
- *a* Minerals, ores, geological collections, etc. 100
- *b* Bituminous and cannel coal. 101
- *c* Hewn, sawed, and polished building stone, marbles, and slates. 102
- *d* Lime and cement. 103
- *e* Clays and silex for glass manufacturers; sandstone, etc. 104
- *f* Mineral waters, natural brines, gypsum, marls, etc. 107

144 State of Delaware (by J. P. Comegys, Dover, Del.). W 65.
- *a* Iron ore 100
- *b* Building stone. 102
- *c* Clays. 104
- *d* Natural woods. 600
- *e* Fruits. 610
- *f* Cereals. 620
- *g* Peas, beans, potatoes, turnips. 621

145 State of Missouri (collective exhibit, by Thos. Allen, President State Board Centennial Managers, St. Louis, Mo.). V 65.
- *a* Iron, lead, zinc, copper, and nickel ores, barytes, feldspar, and soils. 100
- *b* Coal. 101
- *c* Stone. 102
- *d* Clays, sand, ochres, and kaolin. 104
- *e* Tripoli. 106
- *f* Peanuts. 605
- *g* Wheat, rye, oats, barley, and corn. 620
- *h* White beans and black-eyed peas. 621
- *i* Millet. 624
- *j* Cotton. 665
- *k* Flax and hemp. 666
- *l* Wool. 667
- *m* Silk. 668

146 Cochran, John M., & Co., Bradford, Pa.—Connellsville bituminous coal and coke. T 56. 101

147 Philadelphia and Reading Coal and Iron Co., Philadelphia, Pa.—Anthracite coal. Y 56. 101

148 Kittaning Coal Co., Philadelphia, Pa.—Section of coal-vein. Y 56. 101

149 Westmoreland Coal Co., Philadelphia, Pa.—Bituminous coal. Y 58. 101

150 Penn Gas Coal Co., Westmoreland county, Pa.—Section of bituminous coal-vein. Y 56. 101

151 Van Wickle, Stout, & Co., New York, N. Y.—Anthracite coal from Ebervale, Pa. W 53. 101

152 McClintock, I. R., Philadelphia, Pa.—Products of asphaltum by the McClintock process. T 56. 101

153 Linderman, G. B., Bethlehem, Pa.—Anthracite coal. T 64. 101

154 Newton, Jotham, New York, N. Y.—Composition fuel made of coal dust. T 57. 101

155 Rockhill Iron and Coal Co., Philadelphia, Pa.—Semi-anthracite coal; coke. T 72. 101

156 Anthracite Fuel Co., Rondout, N. Y.—Pressed coal from the culm of anthracite. Y 54. 101

157 Hickory Coal Co., Pottsville, Pa.—Samples of coal. W 50. 101

158 Harleigh Coal Co., Philadelphia, Pa.—Samples of coal. W 51. 101

159 Excelsior Coal Mining Co., Philadelphia, Pa.—Samples of coal. W 52. 101

160 Campbell, Tucker, & Co., Philadelphia, Pa.—Anthracite coal from the Wm. Penn colliery. (*Outside.*) 101

161 Pardee, A., & Co., Hazelton, Pa.—Section of coal vein from lands of Lehigh Valley Railroad Co., Hazelton, Pa. (*Outside.*) 101

162 Blauvelt, Jas. C., Marietta, Ohio.—Bituminous coal from Marietta Run, Ohio. V 61 to 64. 101

163 Lexington and Carter county Mining and Manufacturing Co., Lexington, Ky.—Section of bituminous coal. T 68. 101

Minerals, Ores, Stone, Mining Products.

164 Keys, John, Brockwayville, Pa.—Lump of bituminous coal. Y 56. 101

165 Eastern Kentucky Railway, Riverton, Ky.—Sections of cannel and bituminous coals. T 68. 101

166 Dysart & Co., Philadelphia, Pa.—Bituminous white ash coal from Cambria county, Pa. Y 57. 101

167 Kimes, J. B., & Co., Philadelphia, Pa.—Slate mantels, house decorations, building material. T 51. 102

168 Williams Marble and Slate Mantel Co., Philadelphia, Pa.—Marble and marbleized slate mantels, etc. T 48. 102

169 Wilson & Miller, Philadelphia, Pa.—Marbleized slate mantels, etc.; plain slate work. T 50. 102

170 Bye, E. Mortimer, Wilmington, Del.—Ornamental work made from Maryland greenstone, etc. T 70. 102

171 Hayes, Coulter, & Co., Philadelphia, Pa.—Slate mantels with grates. T 59. 102

172 Dougherty, E. D., Philadelphia, Pa.—Blocks of Dougherty marble of Tennessee, rough and polished; pedestals, slabs, etc. T 49. 102

173 Columbian Marble Co., Rutland, Vt.—Marble wainscoting, pedestal, tiling, etc. T 54. 102

174 Reitz & Bode, Portsmouth, Ohio.—Blue freestone and brownstone. T 53. 102

175 Wagner, John, Cleveland, Ohio.—Sawed Euclid bluestone, sandstone. T 51. 102

176 Gurney, H. D., St. Paul, Minn.—Minnesota granite—red, white, and blue. T 53. 102

177 Forest City Stone Co., Cleveland, Ohio.—Sawed stone flagging. T 54. 102

178 Mallory, Jas. E., New York, N. Y.—Marble from Snowflake marble quarry, Pleasantville, N. Y. (*Outside.*) 102

179 Martin, H. F., Allentown, Pa.—Slate mantels and blackboards, school slates, etc. T 50. 102

180 St. Cloud Granite Quarrying and Manufacturing Co., St. Paul, Minn.—Red and white granite. T 54. 102

181 Allen, James T., & Co., Philadelphia, Pa.—Scagliola and Marezzo marble for interior decoration. T 54. 102

182 Fauchere, A. L., & Co.—New York, N. Y.—Marble mantels, etc. T 50. 102

183 Williams, Chas., St. Louis, Mo.—Tennessee, Italian, and Missouri marble work; jewel box. T 53. 102

184 Denton, Drake W., Philadelphia, Pa.—Excelsior slate roofing. T 56. 102

185 Tillson, Davis, Rockland, Maine.—Plain; polished, and ornamental granite work. T 51. 102

186 Maine Slate Co., Skowhegan, Maine.—Roofing slate. T 53. 102

187 Chapman Slate Co., Bethlehem, Pa.—Roofing slate, flagging, stairways, blackboards, posts, door and window sills, mantels. T 64. 102

188 Lehigh Slate Co., Slatington, Pa.—Roofing and school slate, mantels, blackboards, bath tubs; bureau, table, and washstand tops. T 64. 102

189 Allentown Slate Mantel Co., Allentown, Pa.—Slate mantels. T 51. 102

190 Carpenter & Raymond, Cambridge City, Ind.—Monumental work. T 71. 102

191 McDonald, Alexander, Cambridge, Mass.—Rustic rockwork and cross. N 56. 102

192 Bodwell Granite Co., Rockland, Maine.—Granite samples. T 72. 102

193 Brinton, Joseph H., Thornbury P. O., Pa.—Serpentine stone from quarries in Chester county, Pa. T 55. 102

194 Scorgie, Wight, & Co., Cambridge, Mass.—Polished granite fountain. T 53. 102

195 Struthers, W., & Sons, Philadelphia, Pa.—Mantels, font, and other marble work; sand-blast work. T 52. 102

196 Pennsylvania Marble Co., Philadelphia, Pa.—Black marble mantel, book, and tiles. T 51. 102

197 Peach Bottom Slate Mining Co., Philadelphia, Pa.—Peach Bottom slate. T 50. 102

198 Rutland Marble Co., West Rutland, Vt.—Wrought and unwrought marble. T 59. 102

199 Maine Red Granite Co., Red Beach, Maine.—Red granite cube, columns, etc. T 55. 102

200 Columbia Slate Co., Slatington, Pa.—Manufactured Washington vein roofing slate. (*Outside.*) 102

201 Martin, F. O., St. George, Maine.—Block of dressed granite. T 64. 102

202 Wells, Chas. B., Marietta, Ohio.—Sandstone for building purposes. T 64. 102

203 St. Johnsbury Granite Co., St. Johnsbury, Vt.—Granite monument and tablet. (*Outside.*) 102

204 Merrille, Adams H., Williamsburgh, Maine.—Roofing slate. T 50. 102

205 Columbia Slate Co., Slatington, Pa.—Washington vein roofing slate. T 54. 102

206 Ohio Marble Co., Mineral Ridge, Ohio.—Crude and finished black marble. T 53. 102

207 Union Slate Company, Auburn, Maine.—Marbleized slate mantels, bracket shelves, and table tops. T 51. 102

208 Concord Granite Co., Quincy, Mass.—Granite pedestal. N 48. 102

209 Sheldons & Slason, West Rutland, Vt.—Pedestal of statuary and blue mottled marble. H 69. 102

210 Mitchell, William H., Quincy, Mass.—Pedestal of Quincy granite. N 58. 102

211 McNally, William G., Cleveland, Ohio.—Coat-of-arms of Ohio, carved from Berea stone. (*Ohio State Building.*) 102

212 Thompson, Wm. S., Springfield, Ohio. T 54.
- *a* Stone. 102
- *b* Lime. 103

213 Amherst Stone Co., Cleveland, Ohio. T 57.
- *a* Blocks of sandstone. 102
- *b* Grindstones. 106

214 Warthorst & Co., Massillon, Ohio. T 58.
- *a* Blocks of sandstone. 102
- *b* Grindstones. 106

Minerals, Ores, Stone, Mining Products.

215 Philadelphia and Reading Railroad Co., Philadelphia, Pa. T 72.
a Building stone. 102
b Limestone. 103

216 Worthington & Sons, North Amherst, Ohio. T 56.
a Amherst building stone. 102
b Grindstones, etc., from quarries at Amherst and Lake Huron, Mich. 106

217 Williams, R. L., Middle Granville, N. Y. T 51.
a Vermont and New York roofing slate. 102
b Car coupler. 576

COLLECTIVE EXHIBIT OF BUILDING STONES USED IN THE OHIO STATE BUILDING. 102

218 Hoffman, A. O., Thompson, Wm., and others, Springfield, Ohio.

219 Berea Stone Co., Berea, Ohio.

220 Hurst, I. K., Cleveland, Ohio.

221 Ford, O. D., Cleveland, Ohio.

222 Halderman, L., & Son, Cleveland, Ohio.

223 Wagner, John, Cleveland, Ohio.

224 Amherst Stone Co., Cleveland, Ohio.

225 Black River Stone Co., Cleveland, Ohio.

226 Paul, John, & Co., Massillon, Ohio.

227 Wilson & Hughes Stone Co., Cleveland, Ohio.

228 Clough Stone Co., Amherst, Ohio.

229 Worthington & Sons, Amherst, Ohio.

230 Ohio Stone Co., Cleveland, Ohio.

231 McDermott, J., & Co., Cleveland, Ohio.

232 Coshocton Stone Co., Coshocton, Ohio.

233 Stitt, Price, & Co., Columbus, Ohio.

234 Finnegan, M., Cincinnati, Ohio.

235 Finnegan, J. H., Cincinnati, Ohio.

236 Montgomery, R. M., Youngstown, Ohio.

237 Caldwell & Tod, Youngstown, Ohio.

238 Byers & McIlhainy, Youngstown, Ohio.

239 Mauser & Haid, Youngstown, Ohio.

240 Hamilton, Homer, Youngstown, Ohio.

241 Warthorst & Co., Massillon, Ohio.

242 Stocking, Z. S., Mansfield, Ohio.

243 Bosler, Marcus, Dayton, Ohio.

244 Huffman, William, Dayton, Ohio.

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245 Tremain, Chas., Manlius, N. Y.—Cement and land plaster. T 57. 103

246 Quigg, J. Travis, Philadelphia, Pa.—Mantel-pieces, wainscoting, columns, pilasters, pedestals, table and bureau tops, etc. T 49. 103

247 Fireproof Building Co., New York, N. Y.—Teil concrete hollow blocks, hollow bricks, and beton blocks. T 55. 103

248 Mitchell, Wilson, Philadelphia, Pa.—Portsilica artificial stone building blocks, partitions, floors, colored paving tiles, etc. T 53. 103

249 Daniels, T. E., Detroit, Mich.—Artificial marble. T 56. 103

250 Wampum Cement and Lime Co., limited, New Castle, Pa.—Portland cement, and samples in artificial stone of various designs. T 57. 103

251 Coplay Cement Co., Allentown, Pa.—Cements, building blocks, pipe, ornaments, etc. T 56. 103

252 Allen Cement Co., Siegfried's Bridge, Pa.—Crude and manufactured cement. T 57. 103

253 Cedar Hollow Lime Co., Philadelphia, Pa.—Lime, lime rock, and model of furnace. T 58. 103

254 Lewis & Willett, Boston, Mass.—Highland artificial stone garden vases and garden edging. T 54. 103

255 Abbott Pavement Co., Brooklyn, N. Y.—Pavement. T 70. 103

256 Union Stone Co., Boston, Mass. T 57.
a Articles in artificial stone, soapstone register borders, millstone cement, etc. 103
b Emery wheels. 106

257 Hampton, Cutter, & Sons, Woodbridge, N. J.—Clays, kaolin, sand. T 64. 104

258 Such, George, South Amboy, N. J.—Samples of clay. T 58. 104

259 Paul, John, & Co., Massillon, Ohio.—White sandstone and white rock sand for glass. T 51. 104

260 Walker, N. U., Wellsville, Ohio.—Fire clay. (*Outside.*) 104

261 Bradford, H., Philadelphia, Pa.—Maryland quartz. T 54. 104

262 Schreiber, W. A. H., Phœnixville, Pa.—Clay, kaolin, flint, spar, and sand; potters' and decorators' materials. T 69. 104

263 Toll, Charles, Monroe, Mich.—Washed and crude silex. V 67. 104

264 Gihlmann, Joseph, Bellaire, Ohio.—Wooden mold for shaping blown glass. T 64. 104

265 Dover Fire Brick Co., Canal Dover, Ohio.—Fire brick and fire clay. T 63. 104

266 Kreischer, B., & Son, Philadelphia, Pa.—Fire clay, etc. X 56. 104

267 American Kaolin Co., New Garden, Pa.—Kaolin, clays, and sand. X 58. 104

268 Dixon Crucible Co., Jersey City, N. J.—Crude and refined graphite. P 72. 105

269 Strow, Wile, & Co., Philadelphia, Pa.—Blacklead crucibles, retorts, covers, etc.; plumbago, crude and prepared; lumber pencils, stove polish. T 59. 105

270 Taylor, Robert, & Co., Philadelphia, Pa.—Blacklead crucibles. T 58. 105

271 Morse Bros., Canton, Mass.—Stove polish, lumber pencils, plumbago. T 56. 105

272 Agnew, D. F., & Co., Pittsburgh, Pa.—Plumbago crucibles, stove polish. T 58. 105

273 Jersey City Crucible Manufacturing Co., Jersey City, N. J.—Crucibles and stove polish. T 58. 105

274 Phœnix Manufacturing Co., Taunton, Mass.—Crucibles and stove polish. T 58. 105

Stone, Mining Products, Metallurgical Products.

275 Webb, Robert, Boston, Mass.—Stove polish, crude and prepared plumbago. T 60. 105

276 Taunton Crucible Co., Taunton, Mass.—Crucibles. T 60. 105

277 Hand, James C., & Co., Philadelphia, Pa.—Corundum manufactured by the Pennsylvania Corundum Co. T 57. 106

278 Washington Mills Emery Manufacturing Co., Ashland, Mass.—Emery. T 57. 106

279 Hyatt & Co., New York, N. Y.—Polishing powder. T 54. 106

280 Carey, Samuel, New York, N. Y.—Millstones. T 55. 106

281 Racine Hardware Manufacturing Co.; Racine, Wis.—Jewelers' polishing lathe and head, turning lathe, power wheels, countershaft, and engraving stand. N 71. 106

282 Scardefiehl, G.W., Newark, N. J.—Burnishing stones and gilders' materials. T 57. 106

283 Detroit Polish Co., Detroit, Mich.—Diamond polish. T 57. 106

284 U. S. Soapstone Manufacturing Co., Cincinnati, Ohio.—Steatite. P 77. 106

285 Patten, F. H., Bath, Maine.—Feldspar and quartz, for potteries and sand paper factories. T 70. 106

286 Lehigh Whetstone Co., Allentown, Pa.—Whetstones from Lehigh mountain, near Allentown, Pa. T 57. 106

287 Russell, Jesse, Boston, Mass.—Emery and crocus cloth, emery wheels and sticks, ladies' scissors, and needle sharpeners. T 68. 106

288 Coffin, Redington, & Co., New York, N. Y.—Infusorial silica, from Nevada, and polishing powder. T 71. 106

289 Louis, Julius, & Bro., Jeffersonville, Ind.—Hot Springs, Arkansas, and other oilstones. N 68. 106

290 Sibley, Freeman K., Waltham, Mass.—Emery and crocus cloth. T 53. 106

291 Schultz, Carl H., NewYork, N.Y.—Carbonic acid and mineral spring waters, siphons, glass fountains, etc. T 58. 107

292 Knight & Widden, Portland Plaster Mills, Portland, Maine.—Calcined and ground land plaster. T 59. 107

293 Champion Spouting Spring, Saratoga Springs, N. Y.—Saratoga water. T 58. 107

294 Godfrey, Bro., & White, Grand Rapids, Mich.—Raw, manufactured, and natural crystalized gypsum. T 59. 107

295 Gettysburg Katalysine Co., Gettysburg, Pa.—Katalysine spring water. T 57. 107

296 Navassa Phosphate Co., Baltimore, Md.—Crude and ground phosphates, from Nevassa Island, West Indies, and other fertilizing materials. T 57. 107

297 Charleston, S. C., Mining Co., Philadelphia, Pa.—Goodrich phosphatic nodules, mined from Agassiz's Ashley fish basin, Lamb's landing, S. C. T 58. 107

298 Bolen & Byrne, New York, N. Y.—Artificial mineral waters, granular effervescing salts, siphons, etc. T 60 107

299 Lippincott, Chas., & Co., Philadelphia, Pa.—Apparatus for dispensing aerated waters. B 38. 107

300 Lawrence, A. R., & Co., Saratoga Springs, N. Y.—Saratoga waters, and apparatus for drawing them. T 68. 107

Metallurgical Products.

301 Hastings & Co., Philadelphia, Pa.—Gold leaf, foil, and bronze; silver leaf, bronze powder, etc. P 47. 110

302 Auer, Henry, Philadelphia, Pa.—Silver leaf, in all its stages of manufacture. P 43. 110

303 Cambria Iron and Steel Co., Johnstown, Pa.—Iron—pig, bloom, and muck bar, rail piles and rails; steel—Bessemer pig, an spiegeleisen, ingots, blooms, and rails. T 65. 111

304 Wood, W. D., & Co., McKeesport Iron Works, Pittsburgh, Pa.—Patent planished sheet iron. T 61. 111

305 Park Bros. & Co., Black Diamond Steel Works, Pittsburgh, Pa.—Cast steel; samples of homogeneous crucible cast steel boiler plate and flangings. T 62. 111

306 Rowland, James, & Co., Kensington Iron and Steel Works, Philadelphia, Pa.—Anvil brand, refined bar, band, skelp, hoop, and nut iron; plow, cultivator, and shovel steel. T 63. 111

307 Wood, Alan, & Co., Philadelphia, Pa.—Planished, galvanized, and common, and charcoal bloom, sheet, and plate iron. T 61. 111

308 Straus, J. E., & Co., Philadelphia, Pa.—Hoop iron. P 71. 111

309 Miller, Metcalf, & Parkins, Crescent Steel Works, Pittsburgh, Pa.—Crucible steel and articles manufactured therefrom. T 60. 111

310 Hussey, Wells, & Co., Pittsburgh, Pa.—Crucible cast steel bars, sheets, homogencous boiler plates, railway axles, forgings, edge tools, rake teeth. T 68. 111

311 Phillips, Nimick, & Co., Sligo Iron and Steel Works, Pittsburgh, Pa.—Iron and steel. T 63. 111

312 Union Iron Co. of Buffalo, Buffalo, N. Y.—Solid wrought iron rolled beams. U 57 to 60. 111

313 Otis Iron and Steel Co., Cleveland, Ohio.—Ingots, bars, plates, and forgings of Siemen's Martin steel. T 65. 111

314 Cleveland Rolling Mill Co., Cleveland, Ohio.—Pig metals, rails, bars, etc., of iron and Bessemer or Siemen's Martin steel. T 60. 111

315 Akron Iron Co., Akron, Ohio.—Best common and refined iron; iron for agricultural implements. T 62. 111

316 State of New Jersey (by Geo. H. Cook, State Geologist, New Brunswick, N. J.). T 70.
a Iron, steel, spiegeleisen. 111
b Spelter, sheet zinc, zinc white. 113

317 Penn Steel and Iron Co., Clintonville, N. Y.—Loops, blooms, billets, bars, and steel. T 63. 111

318 Washburn & Moen Manufacturing Co., Worcester, Mass.—Iron wire rods; iron and steel wire. T 63. 111

Metallurgical Products.

319 American Sheet and Boiler-plate Co., Cleveland, Ohio.—Plate, sheet, corrugated, galvanized, metallic tile, universal plate and agricultural iron, Bessemer or Siemen's Martin steel. T 59. III

320 Cooper, Hewitt, & Co., New York, N. Y.—Iron fluxes, blooms, pigs, rods, bars, rails, beams; chain, wire, horseshoe, and Martin steel. T 66. III

321 Hanging Rock Iron Region Furnaces, Chas. Campbell, Commissioner, Ironton, Ohio.—Pig iron, with articles manufactured therefrom. T 69. III

322 Beale, Horace A., Parkesburg, Pa.—Rolled iron for boiler tubes and plates, hollow bottom plates for puddling furnaces. T 66. III

323 Clark, Wm., & Co., Pittsburgh, Pa.—Hoop, band, and scroll iron. T 66. III

324 Reese, Graff, & Woods, Pittsburgh, Pa.—Wrought iron, cast and special steel, horse and mule shoes, steel yoe calks. T 66. III

325 Pittsburgh Steel Casting Co., Pittsburgh, Pa.—Cast steel castings. T 66. III

326 McCullough Iron Co., Philadelphia, Pa.—Bloom and refined cleaned sheet iron; charcoal blooms. P 70. III

327 Moorehead & Co., Soho Iron Mills, Pittsburgh, Pa.—Galvanized and block sheet iron; roofing and ceiling irons. T 66. III

328 Henderson, James, Hamburg, Pa.—Wrought iron made by the Henderson process. T 59. III

329 Brown & Co., Wayne Iron and Steel Works, Pittsburgh, Pa.—Cold-blast charcoal metal, blooms, boiler plate, bars; agricultural irons. T 62. III

330 Guille Anti-friction Metal Co., New York, N. Y.—Anti-friction metal for solid bearings of machinery and railroads. T 63. III

331 Edgar Thomson Steel Co. (limited), Pittsburgh, Pa.—Bessemer steel rails, billets, blooms, and ingots. T 66. III

332 Edgar Thomson Steel Co. (limited), Pittsburgh, Pa.—Steel rails. (*Outside.*) III

333 Lucy Furnace Co., Pittsburgh, Pa.—Pig metal, etc. T 66. III

334 Carnegie Bros. & Co., Pittsburgh, Pa.—Wrought iron beams, channels, bridge iron, etc. T 66. III

335 Wilson, Walker, & Co., Pittsburgh, Pa.—Railroad car forgings. T 66. III

336 Keystone Bridge Co., Pittsburgh, Pa.—Raritan Bay pivot bridge, weldless chord bars, wrought iron tubular sectional columns. T 66. III

337 United States Corrugated Elbow Co., Cincinnati, Ohio.—Stovepipe elbow machine; stovepipe elbows. T 61. III

338 Gregory & Co., Jersey City, N. J.—American cast steel. T 59. III

339 Duncan, John W., Philadelphia, Pa.—Pig metal. T 72. III

340 Tuscarawas Coal and Iron Co., Cleveland, Ohio.—Pig iron. T 71. III

341 Rhodes & Co., Cleveland, Ohio.—Bessemer car-wheel and malleable charcoal irons. T 71. III

342 Woodstock Iron Co., Anniston, Ala.—Hot-blast, cold-blast, and spiegeleisen iron, charcoal. T 63. III

343 Brady, Edward, Philadelphia, Pa.—Button fastenings, collars, skates, steel, armor plates, and bolts. T 63. III

344 Crane Iron Co., Catasauqua, Pa.—Foundry and forge pig iron; cinder. T 64. III

345 Alexander, John S., Philadelphia, Pa.—Bayonet spade. T 70. III

346 Singer, Nimick, & Co., Pittsburgh, Pa.—Saw, tool, plow, machinery, safe, and boiler steel; steel railway axles and springs. T 69. III

347 Magnetic Iron Co., Philadelphia, Pa.—Bessemer ore products. T 69. III

348 Crab Orchard Iron Co., Phila., Pa.—Samples of iron and steel. T 69. III

349 Danville Iron Co., Danville, Pa.—Railroad iron. T 66. III

350 Winch, Corydon, Philadelphia, Pa.—Wrought iron spikes. T 66. III

351 Philadelphia Iron and Steel Co., Philadelphia, Pa.—Special shapes and manufactures of iron. T 66. III

352 Cumberland Nail and Iron Co., Bridgeton, N. J.—Wrought iron pipe. T 66. III

353 Davis, O. W., jr., Bangor, Me.—Charcoal pig iron, fluxes, cinders; articles made in part from Katahdin iron. T 69. III

354 Durham Iron Co., Riegelsville, Pa.—Flux, pig iron, and cinders. T 64. III

355 Glendon Iron Co., Easton, Pa.—Flux, slag, and pig iron. T 64. III

356 Uhler, Peter, Easton, Pa.—Flux, slag, pig iron. T 64. III

357 Keystone Iron Co., Easton, Pa.—Flux, slag, and pig iron. T 64. III

358 Carter, W. T., & Co., Redington, Pa.—Pig iron, slag. T 64. III

359 Northampton Furnace, worked by the Bethlehem Iron Co., Bethlehem, Pa.—Pig iron, flux, slags. T 64. III

360 Lehigh Iron Co., Allentown, Pa.—Flux, slag, and pig iron. T 64. III

361 Bethlehem Iron Co., Bethlehem, Pa.—Charges and products of iron, Bessemer, and spiegeleisen furnaces; products from Bessemer steel mill. T 64. III

362 Emaus Iron Co., Allentown, Pa.—Flux, slag, and iron. T 64. III

363 Millerstown Iron Co., Allentown, Pa.—Flux and pig iron. T 64. 211

364 Thomas Iron Co., Hokendauqua, Pa.—Iron and flux. T 64. III

365 Allentown Rolling Mill Co., Allentown, Pa.—Flux, iron, and slag, fist-plate bolts, nuts, spikes, rivets, etc. T 64. III

366 Allentown Iron Co., Allentown, Pa.—Pig iron. T 64. III

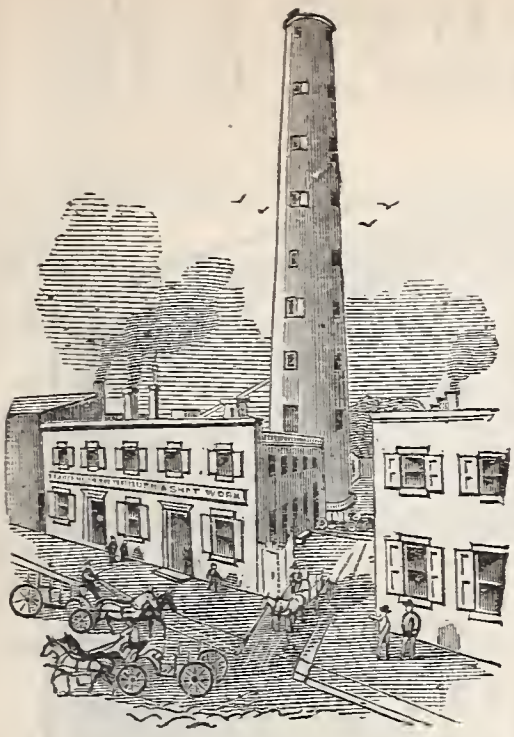
367 Lehigh Valley Iron Co., Copley, Pa.—Pig iron, cinders. T 64. III

368 Carbon Iron Co., Parryville, Pa.—Flux, slag, and pig iron. T 64. III

369 Sancon Iron Co., Hellertown, Pa.—Pig iron. T 64. III

370 Catasauqua Iron Co., Catasauqua, Pa.—Rolled iron and steel, iron and steel bars bent hot and cold and fractured. T 64. III

371 Lehigh Zinc Co., Bethlehem, Pa.—Metallic and sheet zinc, zinc oxide. T 64. III



Founded July 4th, 1808.

PHILADELPHIA

SHOT TOWER

OFFICE, 121 WALNUT ST.

FACTORY, 125 to 131 CARPENTER STREET,

PHILADELPHIA.

CIRCULAR

Showing the average weight and diameter of Shot manufactured by THOMAS W. SPARKS.

MOULD SHOT.

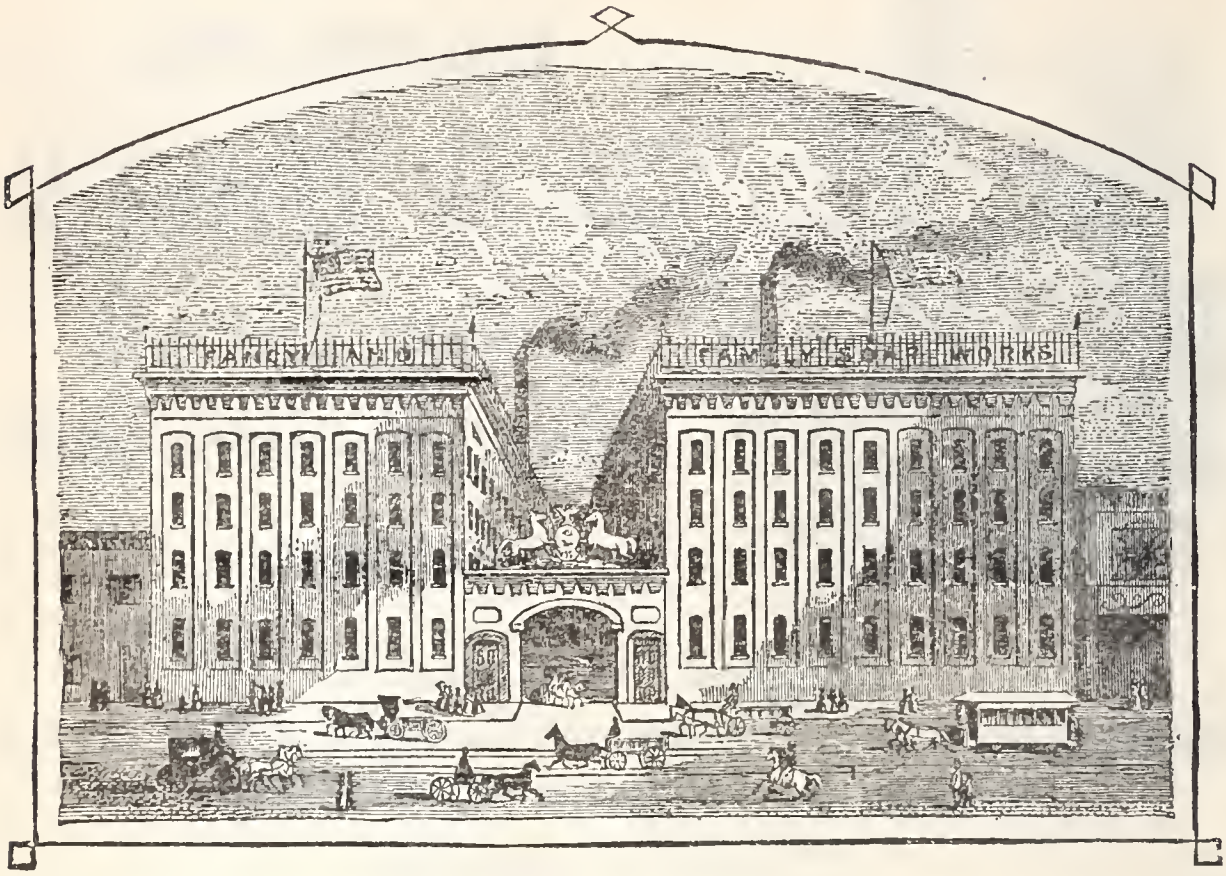
Calibre or Average Diam.	Number.	Number to Lb.	Number of Pellets to an Ounce, Avoirdupois.	
			As Found.	Without Fractions.
0.3329 inch.	L. Buck	128	8.00	
0.3256 "	C P	136	8.51	
0.3186 "	O	144	9.01	
0.3105 "	Buck	165	9.61	
0.2801 "	G	212	13.15	
0.2495 "	S G	320	18.62	

DROP SHOT.

0.1927 inch.	T	40.53	41
0.1768 "	B B B	50.49	50
0.1704 "	B B	58.80	59
0.1623 "	B	69.64	70
0.1512 "	1	84.76	85
0.1420 "	2	102.24	102
0.1358 "	3	117.57	118
0.1281 "	4	143.45	143
0.1151 "	5	187.49	187
0.1024 "	6	266.53	267
0.0968 "	7	317.04	317
0.0838 "	8	515.23	515
0.0733 "	9	714.69	715
0.0644 "	10	1097.92	1098
0.0538 "	11	1825.87	1826
0.0490 "	12	2918.38	2918

ALL SIZES OF CONICAL AND RIFLE BALLS CONSTANTLY ON HAND.

McKEONE, VAN HAAGEN & CO.



MANUFACTORY:

Nos. 2518-20-22-24-26-28-30-32-34-36-38-40-42-44-46-48-50

CALLOWHILL STREET, PHILADELPHIA.

FINEST TOILET SOAPS.

TROPICAL BOUQUET, PALACE BOUQUET, VIOLET BOUQUET,
PARISIAN BOUQUET, TURKISH BATH, OATMEAL,
GLYCERINE, TURTLE OIL, HONEY,
ROSE, MAIZE FLOUR, MUSK,

AND OVER 200 OTHER DIFFERENT KINDS OF FINE AND STAPLE TOILET SOAPS.

LAUNDRY SOAPS.

CROWN JEWEL, FINEST, ORIENTAL DETERSIVE,

AND OVER 30 OTHER DIFFERENT KINDS OF BEST STAPLE LAUNDRY SOAPS.

OUR SPECIALTY:

WHITE AND MOTTLED CASTILE SOAPS,

MADE FROM PURE OLIVE OIL.

SILK AND WOOLEN MANUFACTURERS' SOAPS.

English Mill Fulling. English Mill Olive Oil Fig.
Saxon Fig. Bradford Scouring.

McKEONE, VAN HAAGEN & CO.,

No. 33 SOUTH FRONT STREET,

PHILADELPHIA.

141 Chambers Street, New York.

102 State Street, Boston, Mass.

Metallurgical Products.

372 Stewart & Co., South Easton, Pa.—Round, square, and triangular iron wire. T 64. III

373 Gough, Edward, Allentown, Pa.—Turned rolls. T 65. III

374 Bay State Iron Co., Boston, Mass.—Homogeneous iron boiler plates and iron. T 64. III

375 Co-operative Iron and Steel Works, Danville, Pa.—T and street passenger railroad iron. T 63. III

376 Shaiter, R. M., Carrick Furnace, Franklin county, Pa.—Cold-blast pig iron. T 63. III

377 Philadelphia and Reading Railroad Co., Philadelphia, Pa.—Rails. T 72. III

378 Nes, Charles M., and Mintzer, S. J., Philadelphia, Pa.—Steel and steel-capped rails. T 63. III

379 Shelley Iron Co., Shelley Iron Works, Ala.—Charcoal pig iron, chilled castings, wire rods, cotton ties. T 71. III

380 Chrome Steel Co., Brooklyn, N. Y.—Chrome steel, with samples showing tortional, tensile, and compressive strength; welded chrome steel and iron, ingredients of manufacture. T 64. III

381 Cartwright, McCurdy, & Co., Youngstown, Ohio.—Hoop iron. T 64. III

382 Jones, Ingold, & Co., Pittsburgh, Pa.—Tool and die cast steel, material of manufacture, fluxes, crucibles. T 67. III

383 Rockhill Iron and Coal Co., Philadelphia, Pa.—Pig iron. T 72. III

384 Tecumseh Iron Co., Tecumseh, Ala.—Charcoal pig iron, limestone, charcoal. T 70. III

385 Albany and Rensselaer Iron and Steel Co., Troy, N. Y.—Bessemer steel and iron rails, plates, merchant bars, axles, horseshoes, etc. T 68. III

386 Atha, Benj., & Co., Newark, N. J.—Round rolled cast steel. T 71. III

387 Morse & Bennett, New York, N.Y.—Steel railroad axle, tubing and spinning rings. T 68. III

388 Grand Tower Mining, Manufacturing, and Transportation Co., Grand Tower, Ill.—Iron ore products, cokes. T 68. III

389 Globe Rolling Mill Co., Cincinnati, Ohio.—Iron. T 63. III

390 Lackawanna Iron and Coal Co., Scranton, Pa.—Steel and iron railroad bars. U 52. III

391 Passaic Rolling Mill Co., Paterson, N. J.—Rolled iron, rivets, nuts. T 64. III

392 Cox, Justice, jr., & Co., Philadelphia, Pa.—Pig, bar, sheet, tank, pipe, and angle iron; spikes, railway car axles. T 70. III

393 Riverside Iron Works, Wheeling, W. Va.—Nails, spikes; bar and pig iron. T 64. III

394 I. & I. Rogers Iron Co., Ausable Forks, N. Y.—Round and square iron and charcoal billets for steel, from Palmer ore. T 62. III

395 Vesuvius Furnace, Etna Iron Works, Ironton, Ohio.—Pig iron, cold blast charcoal car-wheel iron. T 68. III

396 Etna Furnace, Etna Iron Co., Hanging Rock, Ohio.—Pig iron, cold-blast charcoal car-wheel iron. T 68. III

397 Alice Furnace, Etna Iron Works, Hanging Rock, Ohio.—Pig iron, "Whitwell ovens" and Ferry process. T 68. III

398 Blanche Furnace, Etna Iron Works, Ironton, Ohio.—Pig irons, Whitwell hot-blast and Ferry process. T 68. III

399 Hecla Iron and Mining Co., Ironton, Ohio.—Pig iron, cold-blast charcoal car-wheel irons. T 68. III

400 Monitor Furnace Co., Ironton, Ohio.—Pig iron, cold-blast charcoal car-wheel iron. T 68. III

401 Mount Vernon Furnace, Hiram Campbell & Sons, Ironton, Ohio.—Pig iron, hot-blast charcoal foundry iron. T 68. III

402 Grant Furnace, W. D. Kelly & Sons, Ironton, Ohio.—Pig iron, hot-blast charcoal irons. T 68. III

403 Center Furnace, W. D. Kelly & Sons, Ironton, Ohio.—Pig iron, hot-blast charcoal irons. T 68. III

404 Howard Furnace Charcoal Iron Co., Ironton, Ohio.—Pig iron, hot-blast charcoal irons. T 68. III

405 Buckhora Furnace, Charcoal Iron Co., Ironton, Ohio.—Pig iron, hot-blast charcoal irons. T 68. III

406 Olive Furnace, Campbell, McGugin, & Co., Ironton, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

407 Lawrence Furnace Co., Ironton, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

408 Pine Grove Furnace, Means, Kyle, & Co., Hanging Rock, Ohio.—Pig iron, hot-blast charcoal irons. T 68. III

409 Ohio Furnace, Means, Kyle, & Co., Hanging Rock, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

410 Ironton Furnace Iron and Steel Co., Ironton, Ohio.—Pig iron, Player hot-blast. T 68. III

411 Belfont Iron Works, Ironton, Ohio.—Pig iron, Player hot-blast. T 68. III

412 Washington Furnace, Union Iron Co., Portsmouth, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

413 Scioto Furnace, L. C. Robinson & Co., Portsmouth, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

414 Bloom Furnace, John Paul & Co., Portsmouth, Ohio.—Pig iron, hot-blast charcoal irons. T 68. III

415 Clinton Furnace, W. I. Bell, Wheelersburg, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

416 Buckeye Furnace Co., Jackson, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

417 Cambria Furnace, D. Lewis & Co., Samsonville, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

418 Jackson Furnace, L. P. N. Smith's heirs, Sciotoville, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

419 Jefferson Furnace Co., Oak Hill, Ohio.—Pig iron; cold-blast charcoal car-wheel and machinery iron. T 68. III

Metallurgical Products.

420 Orange Iron Co., Jackson, Ohio.—Pig iron, hot-blast Jackson county stone coal iron. T. 68. III

421 Star Furnace Co., Jackson, Ohio.—Pig iron, hot-blast Jackson county stone coal iron. T 68. III

422 Huron Iron Co., Jackson, Ohio.—Pig iron, hot-blast Jackson county stone coal iron. T 68. III

423 Tropic Furnace Co., Jackson, Ohio.—Pig iron, hot-blast Jackson county stone coal iron. T 68. III

424 Globe Iron Co., Jackson, Ohio.—Pig iron, hot-blast Jackson county stone coal iron. T 68. III

425 Fulton Furnace, Globe Iron Co., Jackson, Ohio.—Pig iron, hot-blast Jackson county stone coal iron. T 68. III

426 Ophir Furnace Co., Jackson, Ohio.—Hot-blast pig iron. T 68. III

427 Milton Furnace and Coal Co., Wellston, Ohio.—Pig iron, Jackson county softener iron. T 68. III

428 Wellston Coal and Iron Co., Wellston Ohio.—Pig iron, Jackson county stone coal iron. T 68. III

429 Lincoln Furnace, I. M. McGhee's estate, Rud's Mills, Ohio.—Pig iron, cold-blast charcoal iron. T 68. III

430 Eagle Furnace, L. C. Damarin & Co., Rud's Mills, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

431 Richland Furnace Co., Richland P. O., Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

432 Hope Furnace, L. C. Damarin & Co., Portsmouth, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

433 Hamden Furnace, L. C. Damarin & Co., Portsmouth, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

434 Vinton Furnace, Bancroft, Rader, & Co., Vinton Station, Ohio.—Pig iron, hot-blast bituminous coal and coke irons. T 68. III

435 Keystone Furnace Co., Portsmouth, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

436 Monroe Furnace, Union Iron Co., Portsmouth, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

437 Latrobe Furnace, Bundy & Cobb, Berlin Cross-roads, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

438 Logan Furnace Co., Logan county, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

439 Union Furnace, Brooks & Hueston, Haydensville, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

440 Pascal Iron Works, Philadelphia, Pa.—Cast iron work for Main Exhibition building. III

441 Lewis, Oliver, & Phillips, Pittsburgh, Pa.—Iron in merchant bars and odd shapes. T 64. III

442 Roberts, Henry, Newark, N. J.—Iron, Bessemer steel, and cast steel wire. N 69. III

443 Andrews, Hitchcock, & Co., Cleveland, Ohio.—Merchant bar and sheet iron. V 61 to 64. III

444 Mount Savage Furnace, Lexington and Carter county Mining and Manufacturing Co., Lexington, Ky.—Pig iron, hot-blast charcoal iron. T 68. III

445 Buffalo Furnace, Culbertson, Earhart, & Co., Greenupsburg, Ky.—Pig iron, hot and cold-blast charcoal iron. T 68. III

446 Hunnewell Furnace, Eastern Kentucky Railway Co., Riverton, Ky.—Pig iron, hot-blast charcoal foundry iron. T 68. III

447 Pennsylvania Furnace, Eastern Kentucky Railway Co., Riverton, Ky.—Pig iron, hot-blast charcoal foundry iron. T 68. III

448 Charlotte Furnace Co., Riverton, Ky.—Pig iron, hot-blast charcoal foundry iron. T 68. III

449 Laurel Furnace, Robert Scott & Co., Riverton, Ky.—Pig iron, cold-blast charcoal car-wheel iron. T 68. III

450 Gallia Furnace, Norton, Campbell, & Co., Portsmouth, Ohio.—Pig iron, hot-blast charcoal iron. T 68. III

451 Raccoon Mining and Manufactur- Co., Riverton, Ky.—Pig iron, hot and cold-blast charcoal iron. T 68. III

452 Ashland Furnace, Lexington and Big Sandy Railroad Co., Ashland, Ky.—Pig iron, bituminous coal, and Player hot-blast. T 68. III

453 Bellefonte Furnace, Means, Russell, & Means, Ashland, Ky.—Pig iron, hot-blast charcoal foundry iron. T 68. III

454 Norton Iron Works, Ashland, Ky.—Pig iron, nail plate, nails. T 68. III

455 Buenavista Furnace, Means & Co., Ashland, Ky.—Pig iron, hot-blast charcoal iron. T 68. III

456 Trigg Furnace, D. Hillman & Sons, Empire Iron Works, Ky.—Pig iron, cinders, etc.; hot-blast charcoal iron. T 68. III

457 Center Furnace, D. Hillman & Sons, Empire Iron Works, Ky.—Pig iron, hot-blast charcoal iron. T 68. III

458 Empire Iron Works, Trigg county, Ky.—Samples of boiler plate and refined charcoal iron. T 68. III

459 Cleveland Malleable Iron Co., Cleveland, Ohio.—Malleable iron castings and tackle blocks; fifth wheels. T 68. III

460 Traber & Aubery, Cincinnati, Ohio.—Broken car-wheels, chill tests, and castings from Hanging Rock pig iron; pig iron. T 68. III

461 Hanging Rock Iron Region, Ironton, Ohio.—Pig iron. T 68. III

462 Sellers, William, & Co., Edgemoor Iron Co., Wilmington, Del.—Wrought and cast iron work for Main Exhibition Building. III

463 Roberts, A. & P., Pencoyd Rolling Mills, Philadelphia, Pa.—Wrought iron work for Main Exhibition Building. III

464 Morris, Tasker, & Co., Philadelphia, Pa.—Cast iron work for Main Exhibition Building, III

465 Watson Manufacturing Co., Paterson, N. J.—Iron framework of the Main Exhibition Building. III

Metallurgical Products, Mining Engineering.

466 Pusey, Jones, & Co., Wilmington, Del.—Iron work for Machinery Hall. 111

467 State of Michigan (Jay A. Hubbell, Houghton, Mich., Superintendent of Mineral Department). V 67.

a Pig, ingot, and manufactured iron and steel. 111

b Ingot, bar, and rolled copper in its various stages. 112

c Maps, models, stamp-mill model, etc. 120

468 Manhattan Brass Co., New York, N. Y.—Sheet brass; brass, copper, and zinc tubing; brass goods, nickel-plated oilers, etc. T 65. 112

469 Pope, Cole, & Co., Baltimore Copper Co., Baltimore, Md.—Specimens of copper mattes and slags, and refined copper; metallurgical products. T 64. 112

470 Revere Copper Co., Boston, Mass.—American copper; yellow metal and bronze cannon. T 64. 112

471 Pennsylvania Lead Co., Pittsburgh, Pa.—Refined pig lead from ores of Colorado and Utah. T 40. 113

472 Benedict & Burnham Manufacturing Co., Waterbury, Conn.—Sheet brass, German silver, brass tubing, rods, and wire, lamp burners, etc. T 61. 113

473 Passaic Zinc Co., Passaic, N. J.—Zinc ingots, foil, castings, and oxide; sheet zinc. T 63. 113

474 Holmes, Booth, & Haydens, Waterbury, Conn.—Brass and German silver wire, tubing, rivets, lamp trimmings, burners. T 61. 113

475 Brown & Brothers, Waterbury, Conn.—Sheet copper and brass; brass kettles, tubing, wire, rivets. N 71. 113

476 Matthiessen & Hegeler Zinc Co., La Salle, Ill.—Zinc plates and sheets for galvanic batteries and signs. T 70. 113

477 Wharton, Joseph, Camden, N. J.—Nickel goods. T 63. 114

478 Taylor, N. & G., Co., Philadelphia, Pa.—Tin plate patterns. T 62. 114

479 Baker, Joseph W., Philadelphia, Pa.—Anti-friction metals; tinmen's and spelter solder; sounding leads. T 67. 114

480 Scovill Manufacturing Co., Waterbury, Conn.—Sheet brass; German silver, gold and silver plated metal; lamps and trimmings; hinges, buttons, thimbles, castors, metal tubes, etc. P 67. 114

481 Ansonia Brass and Copper Co., Ansonia, Conn.—Brass and copper goods, sheet metal and wire, planished brass and copper. N 57. 114

482 Waterbury Brass Co., Waterbury, Conn.—Brass, German silver; brass wire and kettles; copper rivets, percussion caps, powder flasks, etc. T 62. 114

483 Lancroft, C. E. & H. B., Fair Haven, Conn.—Sulphates of nickel, ammonia, cobalt, and aluminum. P 68. 114

Mining Engineering.

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GREAT BRITAIN.—STATISTICAL PREFACE.

THE following brief table is given (approximately) of the area, population, revenue, and commerce of the British Empire. It is not possible to give the exact figures, but for all practical purposes those now given will be sufficient. The colonies which exhibit are treated under their proper names.

NAME OF COUNTRY.	AREA IN SQUARE MILES.	POPULATION.	REVENUE.	PUBLIC DEBT.	IMPORTS AND EXPORTS.
Great Britain and Ireland,	122,518	31,857,338	$389,600,000	$3,555,100,000	$3,262,900,000
Indian Possessions, etc., .	1,558,254	240,000,000	243,500,000	550,310,000	472,390,000
Other Eastern Possessions,	25,264	3,150,000	10,714,000	8,766,000	160,710,000
Australasia, ...	3,087,000	2,105,000	53,570,000	219,150,000	365,250,000
North America, ...	3,620,500	4,000,000	21,915,000	107,140,000	209,410,000
Africa, ...	250,000	1,400,000	4,870,000	7,792,000	43,830,000
West Indies, ...	12,707	1,075,000	535,700	4,870,000	48,700,000
European Possessions, .	120	160,000	1,022,700	1,217,500	73,050,000
Various settlements, . .	96,171	200,000	2,678,500	3,165,500	24,350,000
Totals, ...	8,772,534	283,947,338	$728,405,900	$4,457,511,000	$4,660,590,000

The *United Kingdom of Great Britain and Ireland* is the full designation of the country more generally known as Great Britain or the United Kingdom. It includes the two large islands of Great Britain and Ireland, and the adjacent smaller islands, together with the Channel Islands and the Isle of Man.

The following table exhibits the area, in English square miles, and population, according to the last census of the several constituent parts:

	AREA.	POPULATION.
England, ...	50,922	21,495,131
Wales, ...	7,397	1,217,135
Scotland, ...	31,324	3,360,018
Great Britain, ...	89,648	26,072,284
Ireland, ...	32,481	5,411,416
Isle of Man, and Channel Islands, ...	394	144,638
	122,518	
Army and Navy, and Merchant Seamen, ...		229,000
		31,857,338

The island of Great Britain lies between latitude 49° 57′ 30″ and 58° 40′ 24″ north, and between longitude 1° 46′ east, and 6° 13′ west, and is the largest island in Europe. It is bounded on the north by the Atlantic, on the east by the North Sea, and on the south by the English Channel, and on the west by the Atlantic, the Irish Sea, and St. George's Channel. Its greatest length is about 608 miles, and its greatest breadth (from Land's End to the east coast of Kent), about 300 miles.

England, which may be roughly said to be divided from Scotland on the north by the Cheviot Hills and the Rivers Tyne and Solway, and from Wales by the Severn

and Dee, is, except on the west and north, for the most part a level country, so cultivated as to be highly productive. The other districts have mineral riches, as iron, tin, lead, copper, and coal, which make abundant amends for the poverty of their surface. Wales is generally mountainous, and also has great mineral wealth.

The greater part of the surface of Scotland is irregularly distributed into mountains and valleys, a very small proportion spreading into level plains. The eastern coast forms a waving, continuous, and rarely broken line; the western is extremely irregular, being deeply indented with bays and arms of the sea, and exhibiting steep promontories and mountainous islands. The whole country is physically divided into *Highlands* and *Lowlands*—the former comprehending the northwest, west, and central portions; the latter, generally speaking, the east coast and the country south of the Forth and Clyde.

Ireland is an island lying between 51° 26′ and 55° 23′ north latitude, and 5° 20′ and 10° 26′ west longitude. It is about 60 miles to the west of England. On three sides it is washed by the Atlantic Ocean, and on the east by the Irish Sea and St. George's Channel. Its greatest length is, from north to south, 306 miles, and from east to west 120 to 180 miles. Ireland is divided into the four provinces of Ulster, Leinster, Munster, and Connaught, which are again subdivided into 32 counties.

The geology of Great Britain is of peculiar importance. British geologists have given to the world the names whereby the various strata are known, and British rocks form the typical series of the earth's strata. The whole recognized series of stratified deposits occur in Britain, one or two only being more fully developed elsewhere; and it is only in these singular cases that the foreign equivalents are taken as the types. British geology is no less important from the influence it has had in the development of the country, its mineral wealth, especially the coal and iron, being the real sinew of Britain's wealth and power.

In the year 1874, there was produced from the ore nearly 6,000,000 tons of pig iron, value £16,476,372; and 385 ounces of gold were raised, value £1540. Copper, tin, lead, zinc, silver, and other metals brought the total value of metals produced up to £19,539,070. The aggregate value of all the minerals, metals, coal, etc., obtained in the United Kingdom in 1874, was £67,834,313. Included in this were 125,043,257 tons of coal, value £46,849,194.

The climate of Great Britain is mild and equable in a remarkable degree, the winters being considerably warmer and the summers colder than at places within the same parallels of latitude. The mean temperature of England is 49.5°, and of Scotland 47.5°.

Very few species of plants or animals are peculiar to Great Britain. The flora, for the greater part, resembles that of Germany; but in the south of England there is, as might be expected, a closer correspondence with that of the northwest of France; and some plants found in the Channel Islands and on the French coast appear nowhere in Britain but on the southwest coast of England. The mountains of Wales, Cumberland, and Scotland have a vegetation resembling that of Scandinavia more than that of the mountains of central or southern Europe. The state of the case is much the same as to the fauna. There are, however, many remarkable instances both of plants and animals, which, from these apparent relations to continental Europe, might be expected in Great Britain, and which are not indigenous to it; as, for instance, among plants, the Norway spruce, and among animals, the lemming, both common in Scandinavia. The progress of civilization and of cultivation has completely banished from Great Britain many of the animals which were once numerous, as bears, wolves, etc. On the other hand, many plants which were unquestionably introduced by man, have become thoroughly naturalized.

For administrative purposes, Great Britain with its surrounding islands (excepting the Channel Islands and the Isle of Man, which are under peculiar jurisdiction) is divided into 84 counties or shires.

The soil of Great Britain is almost exclusively devoted to the production of the two primary necessities of society,—breadstuffs (chiefly wheat, barley, and oats) and grass, roots, etc., as food for domestic animals. The annual value of the pastures and meadow hay is immense. The total extent of land returned in 1872, as being under all kinds of crops, bare fallow and grass, was 31,004,173 acres in Great Britain, 15,746,547 acres in Ireland, 88,573 in the Isle of Man, 18,026 acres in the island of Jersey, and 12,007 acres in the islands of Guernsey, Alderney, etc., making a total for the United Kingdom of 46,869,326 acres. The number of horses included in the agricultural returns was 1,808,259; the number licensed in Great Britain was 857,048; the number of others than agricultural horses exempt from license duty, was probably about 35,000; and the number belonging to the army at home may be stated at 15,000, which would bring the total number of horses in the United Kingdom up to 2,715,000. The total number of cattle returned for the United Kingdom in 1872, was 9,718,000; sheep, 32,246,000; pigs, 4,178,000.

Constabulary returns, based upon information obtained from farmers and others and received by the Boards of Guardians, show that in the year 1873, Ireland produced 469,563 quarters of wheat, 6,912,765 quarters of oats, 1,016,339 quarters of barley, 25,576 quarters of bere and rye, 48,375 quarters of beans and peas, 2,683,060 tons of potatoes, 4,429,967 tons of turnips, 515,690 tons of mangold wurzel, 278,923 tons of cabbage, 19,843 tons of flax, and 3,306,163 tons of hay. At the end of 1873, Ireland had 4,142,400 head of cattle, 4,482,053 sheep, 532,146 horses and 1,042,244 pigs.

The following table shows the condition of the textile industries of the United Kingdom, 1874:

	NO. OF FACTORIES.	HANDS EMPLOYED.
Cotton,	2,655	479,515
Woolen,	1,800	135,605
Worsted,	692	142,097
Flax,	449	128,459
Silk,	818	45,559
Shoddy,	125	3,431
Hemp,	61	5,211
Jute,	110	37,920
Hair,	27	1,211
Hosiery and other factorys,	557	27,667
Total,	7,294	1,006,675

The government of Great Britain is of the kind known as a "constitutional monarchy," in which the sovereign accepts of his dignity under an express agreement to abide by certain prescribed conditions. The sovereignty is hereditary in the family of Brunswick, now on the throne, and in the person of either a male or a female. The executive government of the United Kingdom is vested nominally in the crown, but practically in a committee of Ministers, commonly called the Cabinet, which has come to absorb the functions of the ancient Privy Council, the members of which, bearing the title of Right Honorable, are sworn "to advise the king according to the best of their cunning and discretion," and "to help and strengthen the execution of what shall be resolved." Though not the offspring of any formal election, the Cabinet is virtually appointed by Parliament, and more especially by the House of Commons, its existence being dependent on the possession of a majority in the latter body.

The powers of Parliament are politically omnipotent within the United Kingdom, its colonies and dependencies. It can make new laws, and enlarge, alter, or repeal those existing. Its authority extends to all ecclesiastical, temporal, civil, or military matters, as well as to altering or changing the constitution of the realm. Parliament is the highest court of law, over which no other has jurisdiction.

The budget estimates for the financial year 1875–76, laid by the Chancellor of the Exchequer before the House of Commons, April 15th, 1875, was as follows:

Total revenue,	£75,685,000
" expenditure,	75,266,000
" estimated surplus,	£419,000

The following figures show the numerical strength of the military force in the United Kingdom in 1875:

Cavalry,	13,358
Artillery,	19,418
Engineers,	4,020
Infantry,	55,590
Total,	92,386

The army estimates of March 31st, 1876, contain votes of money for four classes of reserves, as follows:

	MEN.
Militia,	139,018
Yeomanry cavalry,	15,130
Volunteers,	161,150
Enrolled pensioners and army reserve force,	32,000

The total force of the British army in India was stated, in the estimates of 1875–76, to amount to 63,197.

On the 1st of December, 1874, the navy consisted of 233 steamers and sailing vessels, manned by crews aggregating 60,000.

The following are the statistics for the year 1874 of the tonnage of British and foreign vessels (sailing and steam) entered and cleared at ports in the United Kingdom from and to foreign countries and British possessions:

	ENTERED.	CLEARED.	TOTAL.
British,	14,833,644	15,256,039	30,089,683
Foreign,	7,534,866	7,804,408	15,339,274
Total,	22,368,510	23,060,447	45,428,957

There were, in 1874, 20,872 vessels, with crews aggregating 203,606, and of a registered tonnage of 5,864,588.

On the 1st of January, 1875, there were 16,448 miles of railway open in the United Kingdom. The statistics of capital, passengers, receipts, and working expenses for the year 1874 were as follows: Total capital paid up (shares, loans), $2,970,456,106; number of passengers, 478,316,701; total of traffic receipts, $277,109,238; working expenses, $158,040,397.

The number of letters delivered in 1874 was, in England and Wales, 804,000,000, in Scotland, 90,000,000, and in Ireland, 73,000,000. Of postal cards there were 66,000,000 delivered in England and Wales; 9,000,000 in Scotland; and 4,000,000 in Ireland; total for the United Kingdom, 79,000,000.

The number of newspapers and book packets delivered in 1874 was 207,000,000 in England and Wales, 29,000,000 in Scotland, and 23,000,000 in Ireland; total, 259,000,000. The number of money orders in 1874, in the whole of the United Kingdom was 15,900,562, of the aggregate value of £26,296,441. At the end of the year the total amount of deposits held by the Post Office Savings Bank was £24,030,711.

There were 19,116,634 telegraph messages forwarded from postal telegraph stations in the year 1874. The number of post offices at the end of 1874 was 12,950. The total number of telegraph offices, at the same date, was 5600, including 1800 railway telegraph offices. The total length of the postal telegraph wires at the end of 1874 was 107,000 miles.

In England, the chief institutions for education are the ancient national universities of Oxford and Cambridge; the more recent institutions of London, Durham, and Lampeter, in Wales; the classical schools of Eton, Westminster, Winchester, Harrow, Charter House, and Rugby; Owens College, Manchester, and other colleges and schools, chiefly for physical science; the various military schools; the colleges of the dissenting denominations; the middle class schools, either started by individual teachers or by associated bodies acting as directors, to whom the teachers are responsible; and the schools of design.

For primary education, a national system has now been established. Under the Elementary Education Act for England, 1870, a popularly elected school board is established in any district where the existing schools are deficient. Schools under the act are supported by school-rates and fees, and by parliamentary grants, varying according to the number of pupils, and their proficiency, as tested by different standards of examination. They are at all times to be open to government inspection. It is left to the discretion of school boards to make education compulsory.

Scotland possesses four universities for the higher branches of education, viz.: Edinburgh, Glasgow, St. Andrew's, and Aberdeen, besides a variety of other minor colleges. The Scotch education act, 1872, is modelled after the English act, but differs from it by enacting that a school board is to be elected in *every* parish and burgh; by making it illegal for parents to omit educating their children, between five and thirteen, in reading, writing, and arithmetic; and by comprehending higher class schools.

The number of the day-schools in Great Britain, inspected in 1871, was 10,700; the daily average attendance throughout the year was 1,434,488; 1,724,689 scholars were present at inspection; 875,298 were examined; and 598,203 passed the prescribed tests. On the registers of the inspected day-schools were 2,055,312 children, of whom 517,344 were under six years of age, 1,332,229 between six and twelve, and 205,739 above twelve; 2709 night-schools, were inspected, having an average attendance of 86,206 each night. In December, 1871, there were in Great Britain 15,605 certificated teachers, 1196 assistant teachers, and 21,854 pupil teachers.

Ireland is well supplied with educational establishments, having three universities, a large number of endowed schools, and an admirable system of mixed schools.

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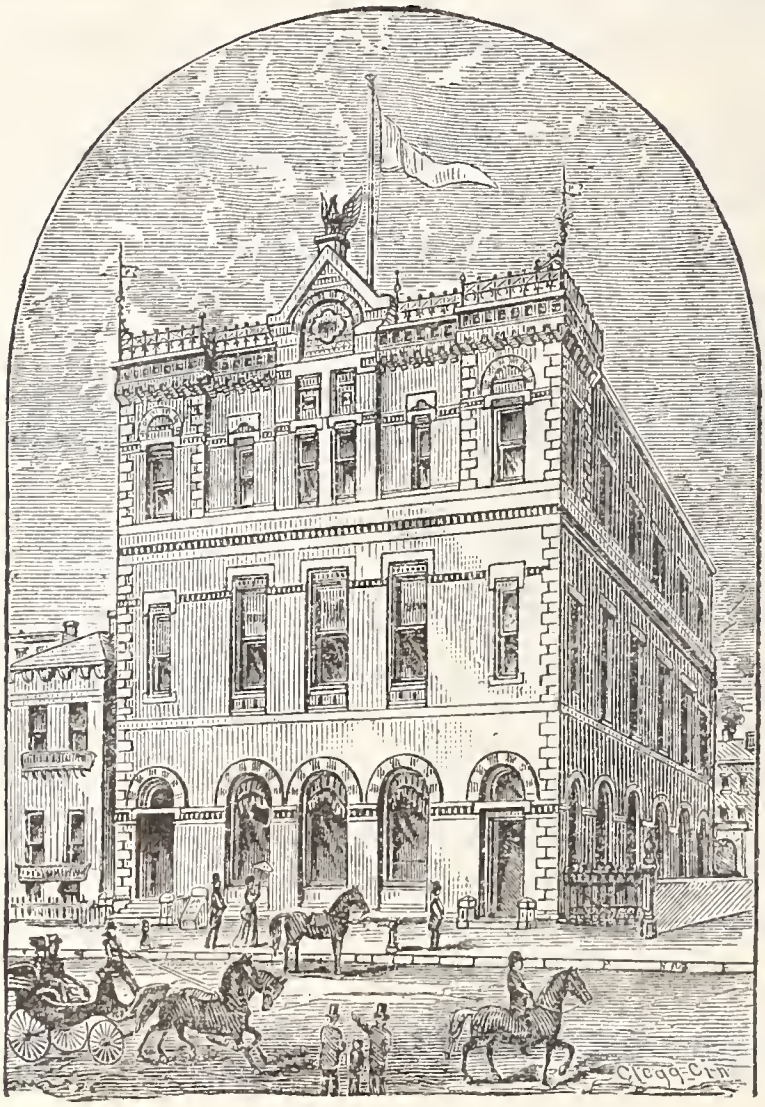

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GREAT BRITAIN.

Minerals, Ores, Stone, Mining and Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

1 **West Cumberland Iron & Steel Co.** (limited), Workington, Cumberland.
a Iron ores. 100
b Coal and coke. 101
c Limestone. 103

2 **Wigan Coal & Iron Co.** (limited), Wigan, Lancashire, England.—Cannel and gas coal. 101

3 **Penrose & Richards,** Swansea, South Wales.—Coke fuel. 101

4 **Dixon, Frederick,** London, E. C.—Patent fuel. 101

5 **Dudgeon, Arthur,** Westminster, London.—Peat fuel manufactured by the Irish Peat Fuel Co. 101

6 **Lindley, Robert Charles,** Mansfield, Nottinghamshire.—Stones from the Mansfield quarries. 102

7 **Cwmorthin Slate Co.** (limited), Portmadoc, North Wales.—Roofing slates. 102

8 **Hunter, James,** Aberdeen, Scotland.—Red polished granite monument. 102

9 **Macdonald, Field, & Co.,** Aberdeen, Granite Works, Aberdeen, Scotland.—Polished red granite monument. 102

10 **Penyrorsed Slate Quarry Co.** (limited), Carnarvon, North Wales.—Roofing slates, slate slabs, cisterns, ridges for roofs, billiard slabs, slate partly manufactured. 102

11 **Shearer, Smith, & Co.,** Dalbeattie Granite Quarries, Scotland.—Scotch polished granite, and street paving blocks. 104

12 **Bessbrook Granite Works,** Bessbrook, Ireland.—Blue and gray Irish granites in headstones, monuments, and building work. 102

13 **Great North of Scotland Granite Co.** (limited), Peterhead, Scotland.—Monumental pedestal and vase in polished red granite. 102

14 **Hollick & Co.,** Greenwich, London.—Portland cement. 103

15 **Patent Selenitic Cement Co.** (limited), London.—Method of preparing lime for mortar, for plastering and brickwork, and also for concrete. 103

16 **Wouldham Cement Co.,** Wouldham-on-the-Medway, Kent, England.—Portland cement and its ingredients in different stages of manufacture. Concrete blocks and other objects made therefrom. 103

17 **Lavers, Alfred Hamilton,** London,—Portland cement, test blocks, cements, plaster of Paris, whiting. 103

18 **Francis & Co.,** Cliffe Creek, Rochester.—Cements, cement concrete, parian scagliola, and decorated parian. 103

19 **Grays Chalk Quarries Co.** (limited), Grays, Essex.—Chalk, whiting, kilndried chalk, gilders' whiting, flint. 103

20 **Eastwood & Co.** (limited), London.—Portland cement; building, paving, ornamental, and fire bricks; Staffordshire blue bricks, and grooved paviors, red paving, roofing tiles, ridges, and clinkers. 103

21 **Pike, William Joseph,** Wareham, Dorsetshire.—Clays. 104

22 **Harrison, George King,** Lye and Brettell Lane Fire Clay Mines and Brick Works, Stourbridge, England.—Stourbridge fire clays. 104

23 **Dunn, Robert, & Co.,** St. Austell, Cornwall.—China clay, in its raw material; samples for potting, bleaching, paper manufacturing, etc. 104

24 **Oakey, John, & Sons,** Wellington Mills, London.—Crude emery stone; grain emery; flour emery. 106

Metallurgical Products.

25 **Johnson, Matthey, & Co.,** London.—Articles in platinum; rare and precious metals. 110

26 **Wigan Coal & Iron Co.** (limited), Wigan, Lancashire.—Hematite, foundry and forge pig iron. 111

27 **Biggs, John,** Liverpool.—Iron and steel produced by a new process. 111

28 **West Cumberland Iron & Steel Co.** (limited), Workington, Cumberland.—Pig iron, spiegeleisen, granulated blast-furnace slag, Bessemer steel in the ingot; steel forgings, rails and rail sections, boiler and bridge plates, railway chairs, etc.; samples illustrating the testing of steel, and its metallurgy. 111

29 **Smith, Frederick, & Co.,** Caledonia Works, Halifax, Yorkshire.—Rope, rigging, telegraph, card, reed, and bonnet wire; iron in its various stages of manufacture into wire. 111

30 **Houghton, William Dickson,** Warrington.—Wire for special and general purposes. 111

31 **Edge & Sons,** Coalport Works, Shropshire.—Wire ropes and chains for mining and engineering purposes. 111

Metallurgical Products.

32 **Ash & Lacy, Globe Works, Staffordshire.**—Galvanized, tinned, plain, and corrugated iron sheets; perforated zinc and metals, etc. 111

33 **Cammell, Charles, & Co. (limited),** Cyclops Steel & Iron Works, Sheffield.—Rolled iron armor plates. 111

34 **Siemens, Charles William, London.**—Specimens of iron and steel. 111

35 **Baldwin, E. P. & W., Wilden** Works, near Stourport.
a Button and sheet iron black plates. 111
b Tin and terne plates; tinned sheets. 113

36 **Brown, John, & Co. (limited), Atlas** Steel & Iron Works, Sheffield.—Armor plates; naval engineering. (*In Machinery Hall.*) 111

37 **Swansea Tin Plate Co., The Tin and** Terne Plate Manufacturers, Swansea Tin Plate Works, Swansea.—Tin and terne plates. 113

38 **Nash, Henry, & Co., Liverpool.**—Tin and terne plates, black plate, and patent continuous roofing terne plate. 113

39 **Governor and Company of Copper** Miners in England, The, Glamorganshire, S. W.—Tin and terne plates. 113

40 **Morewood, E., & Co., Llanelly.**
a Tin and terne plates. 113
b Machines for manufacturing tin and terne plate and galvanized sheet iron. 512

41 **Phosphor Bronze Co. (limited),** London.—Phosphor bronze tools, locks, keys, tubes, wire, sheet, steam fittings, parts of machinery. 114

NEW SOUTH WALES.—STATISTICAL PREFACE.

NEW SOUTH WALES, a British colony in the southeastern portion of Australia, is bounded on the north by a line which, beginning at Point Danger, in latitude 28° 8′ south, follows several lines of heights across the Dividing Range till it meets the 29th parallel, which forms the rest of the boundary westward; on the west by the 141st meridian; on the east by the Pacific Ocean; and the line separating it from Victoria on the south runs from Cape Howe, at the southeast of the island, northwest to the source of the Murray, and then along that stream, in a direction west by north, to the western boundary of the two colonies.

Its area is 323,437 square miles, and its population in 1871 was, exclusive of aborigines, 503,981. At the same date the population of Sydney, the capital, was 134,755. Within the colony of New South Wales, the mountain range, which girdles nearly the whole island, is most continuous and elevated, and is known as the Dividing Range. The section of this mountain system on the southern boundary of the colony, called the Australian Alps, rises in Mount Kosciusko to 6500 feet. From this the range extends northward, the water-shed being from 50 to 150 miles distant from the east coast, and thus divides the colony into two slopes, with two distinct water systems. The rivers on the eastern side descend with great rapidity, and in oblique tortuous courses, their channels often forming deep ravines. Many of them are navigable in their lower course for sea-going steamers. The principal are the Richmond, Clarence, McLeay, Manning, Hunter, Hawkesbury, and Shoalhaven. The numerous streams that rise on the west side of the water-shed within the colony, all converge and empty their waters into the sea through one channel within the colony of South Australia. The southern and main branch of this great river system is the Murray. The other great trunks of the system are the Murrumbidgee, which is navigable, the Lachlan, at times reduced to a string of ponds, and the Darling. The Macquarie, passing through the rich district of Bathurst, is a large tributary of the Darling, but it reaches it only in the rainy seasons. The coast line from Cape Howe to Point Danger is upwards of 700 miles long, and presents numerous good harbors formed by the estuaries of the rivers. Owing to the great extent of the

colony, stretching as it does over eleven degrees of latitude, the climate is very various. In the northern districts, which are the warmest, the climate is tropical, the summer heat occasionally rising in inland districts to 120°, while on the high table-lands weeks of severe frost are sometimes experienced. At Sydney, the mean temperature of the year is about 65°. The mean heat of summer, which lasts here from the beginning of December to the 1st of February, is about 80°, but it is much modified on the coast by the refreshing sea breeze. The annual fall of rain is about 50 inches. Rain sometimes descends in continuous torrents, and causes the rivers to rise to an extraordinary height. Sometimes the rains almost fail for two or three years in succession. Along the coast, for 300 miles from the northern boundary, the soil and climate are admirably adapted for the growth of cotton, and that plant has already been cultivated as far south as the river Manning (latitude 32° south). Further south the climate is more temperate, and is fitted to produce all the grain products of Europe. Immense tracts of land, admirably adapted for agriculture, occur in the southwestern interior; while in the southeast coast districts, the soil is celebrated for its richness and fertility. In the north, the cotton and tobacco plants, the vine, and sugar-cane are grown; and pineapples, bananas, guavas, lemons, citrons, and other tropical fruits are produced. In the cooler regions of the south, peaches, apricots, nectarines, oranges, grapes, pears, pomegranates, melons, and all the British fruits are grown in perfection, and sometimes in such abundance that pigs are fed with them. Wheat, barley, oats, and all the cereals and vegetables of Europe are also grown.

In June, 1872, New South Wales had 5,615,054 sheep, 2,271,923 horned cattle, 233,220 horses, and 146,091 pigs. The total area of land under cultivation, at the same date, embraced 297,575 acres, of which there were under wheat, 154,030 acres, under barley, 3462 acres, under oats, 13,795, under rye, 1342, under maize, 119,956.

New South Wales is believed to be richer in coal than the other territories of Australia. In 1873, there were 26 mines worked, producing in the year 1,192,861 tons of coal, valued at £665,746.

The gold mines of New South Wales cover a vast area, extending chiefly over the districts called the Western Fields, the Northern Fields, and the Southern Fields. Of these the Western Fields are the most important, furnishing three-fourths of the total supply. The gold exports of 1873 consisted of 200,134 ounces, value £773,439, of gold dust and bar, and of 490 boxes, value £2,151,168, of gold coin. The yield from the copper mines, in 1873, was 6027 tons.

The total exports during the year 1874 were £8,668,113; imports, £9,259,816.

The constitution of New South Wales vests the legislative power in a Parliament of two houses, the first called the Legislative Council, and the second the Legislative Assembly. The Legislative Council consists of not less than 21 members, nominated by the crown, and the Assembly of 72 members, elected by sixty constituencies. To be eligible a man must be of age, a natural-born subject of the Queen, or, if an alien, he must have been naturalized for five years, and resident for two years before election. There is no property qualification for electors, and the votes are taken by secret ballot. The executive is in the hands of a governor, nominated by the crown.

The public revenue during 1874 was £4,200,827, the expenditure, £3,506,780. The public debt, chiefly incurred for railways and other public works, amounted, at the end of 1874, to £10,842,415.

New South Wales possesses 396 miles of railways. Of electric telegraph, there were in the colony 6114 miles of wire, at the end of 1874. Number of paid messages transmitted during 1874, 385,000; number of telegraph stations, 105.

The post office of the colony transmitted 9,300,000 letters, 4720 newspapers, and 250,000 packets in 1874.

The number of schools, public and private, in 1872, was 1464, with 106,691 pupils.

Commission from NEW SOUTH WALES to the International Exhibition:

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NEW SOUTH WALES.

(North of Nave, Columns 10 to 17.)

Minerals, Mineral and Metallurgical Products, Engineering.

Minerals, Ores, Stone, Mining Products.

1 McCallum, Argyle, Yaas.—Copper and lode ores from Woolgarloo Mine; iron ore from Bogolong. 100

2 Stuart, Seymour C.—Auriferous quartz from Adelong; lode and stream tin ore. 100

3 King, P. G., Goonoo.—Sulphuret of antimony, from Nundle. 100

4 Howard, John, Sofala.—Antimony, from Crudine creek. 100

5 Coulter, Edward, Sydney.—Magnetic iron ore containing gold and copper, from Mount Lambie. 100

6 Department of Mines, Sydney.
a Mineralogical and geological collection; specimens of gold from the Southern, Western, and Northern districts; models of gold nuggets found in New South Wales; gold trophy, showing production of New South Wales. 100
b Coal trophy. 101

7 Government Printing Office, Sydney, New South Wales.—Mineral and rocks. 100

8 Fountain, John, Gosford, Brisbane Water.—Iron ore from Brisbane Water. 100

9 King, P. G., Goonoo Goonoo.—Lepidodendron fossils from Goonoo Goonoo. 100

10 Wilson, W., Monaltrie, Richmond River.—Fossils. 100

11 Butchart, J. Hawkins, Sydney.—Lode and stream tin ore. 100

12 Caddell, Alfred, Sydney.—Tin ore and wash dirt from Vegetable Creek Tin Mines. 100

13 New South Wales Shale and Oil Company, Sydney.—Kerosene shale. 101

14 Towns, R., & Co., Sydney.—Kerosene shale from Murrurundi. 101

15 Browne, Thomas, Bishop's Bridge.—Sandstone from West Maitland. 102

16 Douglass, W., Sydney.—Slate from a quarry near Goulburn. 102

17 Young, John, Sydney.—Granite from Moruya, and marble. 102

18 Mackintosh & Oakes, Bathurst.—Kaolin. 104

19 Warden, David, Ulladulla.—Kaolin. 104

Metallurgical Products.

20 New South Wales Commissioners.—Copper ingots. 112

21 Moore & Co., Sydney.—Tin ingots. 113

22 Vegetable Creek Company, Sydney.—Tin ingot. 113

23 New South Wales Commissioners.—Tin ingots, bars, and grain tin. 113

24 Bensusan, J. L., Sydney.—Tin. 113

Mining Engineering.

25 Caddell, Alfred, Sydney.—Model of shaft of Vegetable Creek Tin Mine, and report, plan, and photographs. 121

26 Government Printing Office, Sydney, New South Wales.—Mines and mineral statistics. 121

VICTORIA.—STATISTICAL PREFACE.

VICTORIA comprises the southeast corner of Australia, at that part where its territory projects furthest into cool southern latitudes. Wilson's Promontory, to the southeast, the most southerly headland, just passes the 39° of south latitude, while the most northern point, which is at the opposite or northwest extreme, is in south latitude 34°. The longitude comprises 9°,—between 141° and 150° east of Greenwich. To the west is the colony of South Australia, separated by the 141° of east longitude, to the north is New South Wales, separated by the line of the Murray river eastwards from 141° east longitude to its source, and thence by a straight line southeast to Cape Howe, and from Cape Howe to South Australia again the colony is bounded on the south by Bass's Strait. The extreme length is east and west, and

is about 500 miles, by an extreme width north and south of 300 miles. But a remarkable indentation of both the north and south boundaries opposite each other, about the middle of the colony, reduces the breadth between the head of the Port Phillip inlet and the Murray to only 120 miles. The superficial area is 88,198 English square miles.

Although Victoria may be called mountainous, as compared with the general flatness of Australia, it has much of the quiet and peculiar scenery characteristic of that division of the world. The highest mountain in Australia, Mount Feathertop, is 6303 feet in height. The largest river, which runs throughout its entire course in Victoria, is the Gouldbourn, 230 miles long. The Murray, which winds for a distance of 630 miles along the northern boundary of Victoria, rises in New South Wales, and falls into the sea in South Australia, so that it can scarcely be called a Victorian river.

The climate is on the whole healthful and agreeable, but subject to frequent and sudden change in condition and temperature. The average temperature of Melbourne is 57.6°, about the same as that of Marseilles, Bordeaux, Bologna, Nice, and Madrid. The common summer heat is from 65° to 80°, with an occasional advance to 90°, and even to 100°, during hot winds and a dry season. The winter range is mostly from 45° to 60°. Ice occurs in the midwinter of July, but it rarely, except on elevated ground, survives the noonday sun.

The estimated population of Victoria, on the 31st of March, 1875, was returned at 810,442 by the Registrar-general.

In 1875 there were 1,011,776 acres under crops, including 332,936 acres of wheat, 114,921 of oats, 29,505 of barley, 35,183 of potatoes, 119,031 of hay, and 253,129 of green forage. The gross produce was: wheat, 4,850,165 bushels; oats, 2,121,612 bushels; barley, 619,896 bushels; potatoes, 124,310 tons; hay, 157,261 tons; wine, 577,493 gallons. The total number of horses was, in 1875, 180,254; milch cows, 241,137; horned cattle, 717,251; sheep, 11,221,036; pigs, 137,941. The manufactures of Victoria employed 25,000 persons, and the capital invested in machinery and plant was £5,000,000. The number of persons at work in the gold fields, December 31st, 1874, was 45,151, of whom 12,180, or 27 per cent., were Chinese.

The total value of the imports and exports of Victoria, including bullion and specie, for the year 1874, was as follows: Imports, £16,953,985; exports, £15,441,109. The most important, in value, of the imports are woolens, live stock, sugar, cotton, apparel and haberdashery, and tea. The two staple articles of export are wool and gold. The total exports of wool in 1874 amounted to 88,662,311 pounds, of the value of £6,373,641. The exports of gold, exclusive of specie, was 1,012,153 ounces, of a declared value of £4,053,288.

The number of mercantile vessels on the regi of Victoria, at the end of 1874, was 429, with a total tonnage of 70,696, and crews of 3229 men. Of these vessels 47 were steamers.

The constitution of Victoria was established by an act passed by the legislature of the colony in 1854, and subsequently confirmed by the crown. The legislative authority is vested in a parliament of two chambers—the Legislative Council, composed of 30 members, and the Legislative Assembly, composed of 78 members. A property qualification is required both for members and electors of the Legislative Council. No electoral property qualification is required for graduates of British universities, matriculated students of the Melbourne university, religious ministers of all denominations, certificated schoolmasters, lawyers, medical practitioners, and officers of the army and navy. Six members, or a fifth, of the Legislature Council must retire every two years, so that a total change is effected in ten years. The members of the Legislative Assembly are elected by universal suffrage, for the term of three years. The executive is vested in a governor appointed by the crown. The revenue for the year 1874–75 was £4,406,906; the expenditure, £4,425,277. The public debt, incurred mainly in the construction of public works, amounted to £12,485,432 on January 1st, 1875.

Victoria has a more extensive system of railways than any other of the Australasian colonies. On the 1st of January, 1875, there were 457½ miles opened for traffic, and 427 more in course of construction. There were, in 1874, 148 telegraph stations, 4464 miles of wires. Number of telegrams forwarded during the year, 701,080. The work of the post office during the same year, 15,732,888 letters, 6,866,918 newspapers, and 1,269,822 packets. Number of post offices, 802.

The following table shows the educational condition of the population above five years of age:

	MALES.	FEMALES	TOTAL.
Able to read and write,	264,665	209,898	474,665
Able to read only,	30,049	36,336	66,385
Unable to read,	25,462	26,315	51,077

The state of education among the children, between 5 and 15, showed that 846 children out of 1000 could read, 640 could read and write, and only 154 were totally uninstructed. Education in Victoria is gratuitous, secular, and compulsory, and the legislature has voted large sums for the primary education of the people.

The total number of schools is 1867, including 908 "common" schools, with an attendance of 154,353 pupils. (Furnished, in part, by the Victoria Commission.)

Commission from VICTORIA to the International Exhibition:

SIR REDMOND BARRY, Acting Chief Justice of the Supreme Court, President.

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GEORGE COLLINS LEVEY, ESQ., Secretary.

VICTORIA.

(North of Nave, Columns 10 to 17.)

Minerals, Precious Stones.

Minerals, Ores, Stone, Mining Products.

1 Collection of Rocks, Minerals, and Fossils, illustrative of the geology, mineralogy, and mining resources of Victoria, exhibited for, and on behalf of the Government, by R. Brough Smyth, F. G. S., F. L. S., Assoc. Inst. C. E., Secretary for Mines, and Chief Inspector of Mines for the colony. 100

a Older igneous or plutonic rocks.
b Newer igneous or volcanic rocks.
c Aqueous rocks.
d Upper silurian.
e Upper palæozoic.
f Mesozoic-carbonaceous.
g Tertiary.
h Collection of mineral specimens.
i Economic collection: auriferous quartz.
k Fac-similes of gold nuggets found in Victoria.
l Economic minerals.
m Fossil fruit.

2 Acadia Catherine Gold Mining Company, Sandhurst.—Golden stone. 100

3 Bleasdale, J. I., Melbourne.—Collection of gems and precious stones, consisting of diamonds, blue sapphires, oriental emeralds, rubies, aqua-marines, topazes, spinels, beryls, opals, garnets, tourmalines, etc. 100

4 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Fac-similes of nuggets found in Victoria, and mineralogical and geological specimens. 100

5 Costerfield Gold and Antimony Mining Co., Melbourne.—Antimony ore. 100

Minerals, Metallurgical Products, Mining Engineering.

6 **Hanckar, J. H. H., Melbourne.**—Nickel ore from the Boa Kaine Mine, New Caledonia. 100

7 **McGie, James, & Co., Melbourne.**—Nickel ore. 100

8 **Shenandoah Gold Mining Co., Sandhurst.**—Gold-bearing quartz. 100

9 **Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.**—Coal. 101

10 **Mining Department of Victoria,** Melbourne.—Coal. 101

11 **Commissioners for Victoria, to the Philadelphia Exhibition, Melbourne.**—Sawn slate, block of granite, polished marble. 102

12 **Mansfield Shire Council, Mansfield.**—Polished marble, hewn sandstone. 102

13 **Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.**
a Limestones from Major Plains. 103
b Black clay, clay and sand; kaolin clay. 104
c Sharpening stones from Wangunyah. 106

14 **Arthur & Dogherty, New Zealand.**—Lithographic stone, 106

15 **Lewis & Whitty, Fitzroy.**—Knife polish. 106

16 **Hattersley, J., Yackandandah.**—Aerated waters. 107

17 **Lyon, George, Spring Creek, Beechworth.**—Lemonade, soda water, and ginger ale. 107

18 **Rowlands & Lewis, Ballarat and Melbourne.**—Tonic potass, soda, lithia, and seltzer waters, and ginger ale. 107

Metallurgical Products.

19 **Bright Bros. & Co., Melbourne.**—Star antimony in ingots. 113

20 **Costerfield Gold and Antimony Mining Co., Melbourne.**—Antimony. 113

21 **Hodgson, Richard, Collingwood.**—Star antimony, pig lead, block tin. 113

22 **Croaker, Scott, & Co., Melbourne.**—Star antimony. 113

Mining Engineering.

23 **Smyth, R. Brough, Department of Mines, Melbourne.**—Geological maps, reports, etc. 121

NEW ZEALAND.—STATISTICAL PREFACE.

NEW ZEALAND, a British colony in the South Pacific Ocean, consists of three principal islands, called, respectively, the North, South, and Stewart Islands. There are several small islets—mostly uninhabited—dependent on the colony; the chief of them are the Chatham Islands and the Auckland Islands. The New Zealand group is situated about 6500 miles west of South America, and about 1200 miles east of Australia. The entire group lies between 34° and 48° south latitude and 166° and 179° east longitude. The three principal islands extend in length 1100 miles, but their breadth is extremely variable, ranging from 46 miles to 250 miles; the average breadth being about 140 miles. The North and South Islands are separated by Cook Strait, which is crossed by steamers in about two hours.

The total area of New Zealand is about 100,000 square miles, or 64,000,000 acres.

According to a census taken March 31st, 1874, the population (exclusive of the aborigines) numbered 299,514 souls. It is estimated that the present white population (April, 1876) is about 400,000. The Maori population, according to an approximate census taken on June 1st, 1874, was 45,470.

The aborigines, called Maoris, who formerly caused much trouble, though a large number have always sided with the British, are now peacefully settling down to agricultural pursuits, and, since 1871, permanent tranquility appears to have been established.

The New Zealand Islands are of volcanic origin, and a great portion of the entire area is occupied by mountains, among which are many extinct and a few active volcanoes. The mountains are mostly clothed with evergreen forests of luxuriant growth, interspersed with fern-clad ranges, and occasionally with treeless grassy plains. Extensive and rich valleys and sheltered dales abound in the North Island; and in the east of the South Island there are many extensive plains of rich meadowland, admirably adapted either for agriculture or cattle-breeding. Water and water-power are found in great abundance in the colony, and the numerous rivers are

subject to sudden floods from the melting of the mountain snows. As a rule, however, the streams are short, and are not navigable for more than 50 miles above their mouths. The chief is Waikato river, in the North Island, which, issuing from the Taupo lake (30 miles long by 20 broad), flows in a northern direction for 200 miles, and reaches the sea on the west coast. In the South Island, the rivers Clutha, Mataura, and Waiau, all flowing south, are among the chief.

In the North Island, around Lakes Rotomahana and Rotorua, are a number of grand and beautiful geysers, which throw up water heated to two degrees above the boiling point. The southwest coast of the South Island is indented with a number of deep sounds, of which Milford Sound is the chief. In this sound the water is unfathomable; the only way of securing a ship being to moor it, stem and stern, to the trees which overhang the water. Steamers of 2000 tons have been thus moored. The geology of New Zealand is remarkable in a high degree. The mountains, which are of every variety of outline, are chiefly composed of the lower slate-rocks, intersected with basaltic veins, primary sandstone, and limestone. Extensive beds of coal and lignite exist; the former have been to some extent worked, and are at present being largely developed by the construction of railways and harbor works in their vicinity.

Of the whole surface extent of New Zealand, one-fourth is estimated to consist of dense forest tracts, one-half of excellent soil, and the remainder of waste lands, scoriæ hills, and rugged mountain regions. Nearly 40,000,000 acres are supposed to be more or less suitable for agriculture and cattle-breeding. The soil, though often clayey, has in the volcanic districts more than a medium fertility; but the luxuriant and semi-tropical vegetation is perhaps as much due to excellence of climate as to richness of soil. Owing to the prevalence of light and easily worked soils, all agricultural processes are performed with unusual ease. The climate of New Zealand is one of the finest in the world. The country contains few physical sources of disease; the average temperature is remarkably even at all seasons of the year, and the atmosphere is continually agitated and freshened by winds that blow over an immense expanse of ocean. In the North Island, the mean annual temperature is 57°; in the South Island, 52°. The mean temperature of the hottest month at Auckland, in the northernmost province, is 68°, and at Dunedin, in the most southern province, 58°; of the coldest month, 51° and 40° respectively. The air is very humid, and the fall of rain is greater than in England, but there are more dry days. All the native trees and plants are evergreens. Forests, shrubberies, and plains are clothed in green throughout the year, the results of which are, that cattle, as a rule, browse on the herbage and shrubs of the open country all the year round, thus saving great expense to the cattle-breeder; and that the operations of reclaiming and cultivating land can be carried on at all seasons. The seasons in New Zealand are the reverse of ours; January is their hottest month, and June the coldest. All the grains, grasses, fruits, and vegetables grown in England are cultivated in the colony with perfect success, being excellent in quality and heavy in yield; while, besides these, the vine is cultivated in the open air, and maize, the taro (*Caladium esculentum*), and the sweet potato are cultivated with success in the sunny valleys of the North Island.

The entire average under crop, in February, 1875, was 1,788,800. Of the crops, the principal were wheat, oats, barley, potatoes, and sown grass. At the same date, the number of holdings was 16,092, the population being 296,018. The average yield of wheat was, in 1875, over 28 bushels per acre.

The live stock of the colony consisted, at the census of March 1st, 1874, of 99,859 horses, 494,917 cattle, 11,704,853 sheep, 123,921 pigs, and 1,058,198 head of poultry.

Large gold fields were discovered in the spring of 1857. In the year 1874, there were 376,388 ounces of gold, of the declared value of £1,505,331, exported from New Zealand, being little more than half the amount and value exported in 1871, while

from April 1st, 1857, to December 31st, 1874, the total quantity of gold exported was 7,599,973 ounces, valued at £29,577,016 sterling.

The principal produce of the colony is wool, 46,848,735 pounds, valued at £2,834,695, having been exported in 1874.

The total imports of the colony during the year 1874 were £8,121,812; the total exports, £5,251,269.

The temperature, it will be thus observed, is very equable, for while the summers are as cool as those of England, the winters are as warm as those of Italy. The mean annual temperature of Auckland is nearly the same as at Rome; at Wellington, nearly the same as at Milan; at Dunedin, nearly the same as at London. The official reports of the British Army Medical Department shows that, where the annual mortality from all diseases out of every 1000 British soldiers quartered in the United Kingdom was 16, it was only 5 out of every 1000 in the troops quartered for more than 25 years in New Zealand. In other words, this colony appears to be peculiarly favorable to the duration of human life.

In connection with this, it may be mentioned, in order to show the redundancy of the population in New Zealand, that in 1874 the births were 40.05 per 1000 of the population, and the death rate was only 12.97 per 1000, while the marriages were 8.81 for every 1000 people.

The class of people most required in New Zealand are farmers with a small capital, carpenters, who can earn, according to their skill, from 11 shillings to 15 shillings per diem, and single women, who always gain good wages, and rarely stop in service for a long time, being greatly in demand in the matrimonial market. All classes of laborers find ready employment at remunerative rates.

By an imperial statute, passed in 1852, the legislative power is vested in the Governor and a Parliament of two chambers; the first called the Legislative Council, and the second the House of Representatives, and collectively, the General Assembly. The Legislative Council consists at present of 49 members, nominated by the crown for life; and the House of Representatives of 83 members, elected by the people for five years. Two Maoris sit in the Legislative Council, and 4 in the House of Representatives. Two of the latter also are members of the Executive Council. The Governor is assisted by an Executive Council, composed of the responsible ministers for the time being, and any others he may appoint. Members of both branches receive pay at the rate of 150 guineas for the session, which generally lasts three months. Every owner of a freehold worth £50, or tenant householder, in the country at £5, in the town at £10 a year rent, is qualified to vote for members of the House, and is eligible for membership. The seat of government is at Wellington, a town of about 12,000 people, and centrally situated.

The colony is divided into nine provinces; four in the North, and five in the South Islands. Each of these provinces is governed by an elected Superintendent and Provincial Council. In 1875, the General Assembly passed a bill declaring that the provincial governments should cease to exist after the close of their next session. The form of local government which is to take the place of provincial government has not been decided upon, but will probably take the shape of legislative powers.

In the year 1874, the total ordinary revenue (including provincial) was £1,873,448, and the territorial revenue, £1,150,900, which, with incidental receipts of £44,264, makes the total general revenue—ordinary, territorial, and incidental—amount to £3,068,612. The total ordinary expenditure by general and provincial governments was £2,960,711.

Beyond the ordinary expenditure, a sum of £2,725,893 was spent, which is charged to the loan account. The public debt of New Zealand amounted, at the end of 1874, to £13,366,936, and as a loan expenditure is still proceeding, it is estimated that the total debt will shortly amount to about £19,000,000. Against this there is a sinking fund already amounting to £1,000,000, and, moreover, a large amount has been

spent on reproductive works. In 1870, the sum of £4,000,000 was authorized to be borrowed for the purposes of emigration and public works (such as railways, roads, telegraphs, water-races, bridges, etc.), besides £1,000,000 for defence and other purposes. Since then, further large loans have been contracted for public works. To assist in the development of these works, a vast number of emigrants have been brought into the country, receiving either free passage from England or a grant of land. Railways are now being constructed throughout the islands, 260 miles being open for traffic; 420 miles under construction, of which a good deal is near completion; and 330 miles are authorized to be constructed.

Under the stimulus of the public works and emigration policy, no less than 43,965 emigrants arrived in New Zealand in 1874.

On the 31st of December, 1874, the colony had 2632 miles of telegraph lines, and 5284 miles of wires. The number of telegrams during the year was 844,301, of which total 724,582 were private, and the remainder government messages.

During the year 1874, the post office received 4,339,165 letters, and dispatched 4,719,291. The total number of newspapers received was 3,872,668, and dispatched, 2,434,024. Money orders to the number of 62,712 and the amount of £263,164 were issued during 1874.

Grammar and free schools, endowed from the public revenues of the various provinces, several colleges, and two universities, one being established in Otago and the other a corporation endowed by the general government, are the principal educational institutions.

The shipping entered in 1874 consisted of 856 vessels, with a tonnage of 399,296. Of these, 237 vessels, measuring 201,017 tons, were British; 552, measuring 170,303 tons, colonial; and 67, measuring 27,976, were foreign. Of the foreign vessels entered, 50 were American. Coasters are not included in the above statistics. In 1874 the number of vessels entered coastwise was 14,351, and their tonnage 1,353,085.

Commission from NEW ZEALAND to the International Exhibition:

THE HON. WALTER BALDOCK DURANT MANTELL, M. L. C., Chairman.
THE HON. WILLIAM SISBORNE.
WILLIAM HORT LEVIN, ESQ.
DANIEL MCINTYRE, ESQ., Consular Agent of the United States Government at Wellington.
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ARTHUR THOMAS BOTHAMLEY, Secretary.

NEW ZEALAND.

(North of Nave, Columns 10 to 17.)

Minerals, Stone, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

1 Parapara Iron and Coal Co., Nelson.

a Brown hematite ore. 100

b Coal from the Avrere river. 101

c Limestone used as a flux for hematite ore. 103

2 Johnstone Bros., Nelson.—Hematite iron ore. 100

3 Nelson Committee, Nelson.

a Iron, plumbago, galena, zinc blende, copper, antimony, and argentiferous lead ores. 100

b Coal from Coalbrookdale, Mount Rochfort, and Reefton. 101

c Marble from Ruatanuka, Golden Bay. 102

d Porcelain clays from Pakawan and Ruatanuka; steatite from Golden Gully, Collingwood. 104

4 Louisson, T. B., Nelson.—Iron ore, calcined iron ore. 100

5 Washbourn, W. E., Nelson.—Argentiferous lead ore. 100

6 Taranaki Committee.—Titanic iron sand, older tertiary marl, trachyte pebble, trachyte with crystals of hornblende, trachyte cast, hornblende, obsidian, nephrite, taranakite, carnelian. 100

7 Colonial Museum, Wellington.

a Collection of minerals, etc., arranged by James Hector, containing magnetic iron, hematite, chrome, copper, lead, zinc, and manganese ores. 100

b Specimens illustrating the classification of New Zealand coals; petroleums from Sugar Loaf Point, Waiapee, Waipawa. 101

c Marble from Collingwood, Nelson. 102

d Steatite from Parapara Valley, Nelson. 104

8 Kennedy Brothers, Nelson.

a Coal from the Brunner Mine, and coke manufactured from it. 101

b Raw and ground fire clay. 104

9 Albion Coal Co., Nelson.—Coal from Ngakauau. 101

10 Reid, Alexander W., Canterbury.—Coal from Kowai Pass. 101

11 Oakden, J. J., Canterbury.—Anthracite coal from Lake Coleridge. 101

12 Zaranalli Committee.—Lignite from Urenui. 101

13 Rowley, Wilson, & Co., Otago.—Coal from Shag Point, Palmerston. 101

14 Ross, A., Poverty Bay, Auckland.—Petroleum. 101

15 Wilson, W., Christchurch.—Hewn white and yellow limestone. 102

16 Zaranaki Committee.—Potters' clay from Urenui. 104

17 National Museum, Washington, J. Henry, Secretary.

a Skeletons of the moa (dinornis and palapteryk). 100

b Model of egg of the dinornis. 100

Metallurgical Products.

18 New Zealand Commissioners.—Specimens of alluvial gold and gold-bearing quartz from Auckland, Westland, and Otago, collected by the Bank of New Zealand. 110

19 Government of New Zealand.—Specimens of alluvial gold from Nelson and Westland. 110

20 Nelson Committee.—Specimens of auriferous quartz from Reefton. 110

21 Government of New Zealand.—Specimens of auriferous quartz from the west coast. 110

22 Reefton Committee.—Specimens of auriferous quartz from the Inangahua and Lyell districts, Nelson. 110

23 Government of New Zealand.—Specimens of alluvial gold from Otago; bars of melted and refined gold; bars of chloride of silver, and silver; model of gold weighing 375 oz., as exported by Bank of New Zealand, Auckland. 110

24 Tolhurst, George E., Bank of New Zealand, Wellington.—Models of gold ingots. 110

CANADA.—STATISTICAL PREFACE.

THE Dominion of Canada consists of the provinces of Ontario, Quebec—formerly Upper and Lower Canada—Nova Scotia, New Brunswick, Manitoba, British Columbia, and Prince Edward's Island. The two principal provinces, Quebec and Ontario, are almost entirely embraced within the basin of the river St. Lawrence, but occupy only those portions north of the great lakes, and of the river as far as the town of Cornwall (45° north latitude and 74° 45′ west longitude), whence eastward they occupy both banks, and are bounded on the south by the United States. The most westerly limit is the heads of the Pigeon and Arrow rivers, which debouch in Lake Superior. The eastern or maritime provinces embrace no portion of the basin of the great river.

The following table shows the area and population of the various provinces:

	AREA, ENG. SQ. MILES.	POPULATION (1871).
Ontario,	121,260	1,620,851
Quebec,	210,020	1,191,516
Nova Scotia,	18,660	387,800
New Brunswick,	27,105	285,594
Manitoba,	2,891,734	11,953
British Columbia,	213,000	10,586
Prince Edward's Island,	2,173	94,021
Total,	3,483,952	3,602,321

The principal river of Canada is the St. Lawrence. Its most important tributaries are all from the left. The St. Lawrence drains an area of 565,000 miles. The Ottawa, 450 miles long, forms the boundary between Ontario and Quebec. The St. Maurice is nearly 400 miles in length, and the Saguenay, noted for its fine scenery, is 225 miles long. The only affluents from the right worth naming are the Richelieu, the St. Francis, and the Chaudiere.

A great part of Canada, more especially the shores of Lake Superior, is valuable only for mineral resources, such as iron, zinc, lead, copper, silver, gold, cobalt, manganese, gypsum, marl, granite, sandstone, limestone, slate, and marbles of nearly every imaginable color. Considerable portions, also, though heavily timbered, chiefly with pine, are yet but little adapted to settlement and cultivation. Towards the Gulf of the St. Lawrence, again, a considerable section derives importance mainly from the fisheries, being, with partial exceptions in Gaspe, comparatively worthless for every other object. Thus the area for the profitable production of ordinary cereals cannot materially exceed 40,000 square miles, containing, however, within this space a singularly small portion of irreclaimable surface. This cultivable block increases regularly in width and fertility, from its commencement on the lower St. Lawrence to the shores of Lake Huron. Below Quebec—to say nothing of the precarious nature of the crops—there may always be seen, on one or on both sides, the primeval forest. Between that city, again, and the basin of the Ottawa, a gradual improvement shows itself, even on the north side; and towards the south there stretches away to the frontier of the United States a broad belt of generally undulating character, probably the best field in the country for the blending of pasturage and agriculture. From the basin of the Ottawa inclusive, the parallel of the south end of Lake Nipissing may be said to cut off, towards the southwest, the entire residue of the practicable soil, in the shape of a roughly defined triangle, which, as a whole, is at least equal, in the growth of grain in general and of wheat in particular, to any region of the same extent in North America.

The climate of Canada is subject to great extremes of heat and cold, the thermometer ranging between 102° above and 36° below the zero of Fahrenheit.

As Canada slants southwards eight or nine degrees from the mouth of the St Lawrence to that of the Detroit, which communicates between Lakes St. Clair and Erie,

the climate of the west must be warmer than that of the east. Besides, the lakes of Upper Canada appear, in a good measure, to neutralize and mitigate the extremes of a Canadian climate. While Quebec in winter ordinarily enjoys five or six months of sleighing, the corresponding season in Toronto ranges from five or six days to five or six weeks. As to summers, the difference in favor of Toronto is rather in point of duration than of intensity. As indications of the climate of Canada, it may be stated that the isle of Orleans, immediately below Quebec, is famous for its plums, and the island of Montreal for its apples; and from the neighborhood of Toronto to the head of Lake Erie, grapes and peaches ripen without any aid whatever. Melons, again, of large size, come to maturity, through the settled parts of the province, in the open air; and pumpkins and squashes attain enormous size, some of them near Toronto having weighed 300 pounds.

The following statistics of the mining, agricultural, and manufacturing industries are taken from the Official Report of the Canadian Census of 1871. They refer only to the provinces of Ontario, Quebec, New Brunswick, and Nova Scotia.

RAW MINERAL PRODUCTS.

Coal,	671,008 tons.	Gold,	22,941 oz.
Iron ore,	129,363 "	Silver,	69,197 "
Copper ore,	13,310 "	Phosphate of lime,	1,980 tons.
Pyrites,	2,800 "	Mica,	4,010 lbs.
Manganese,	635 "	Crude petroleum,	12,969,435 galls.
Other ores,	14,063 "	Grained marble,	8,870 cub. ft.
Peat,	14,772 "	Building stone for dressing,	5,206,796 "
Plumbago,	270 "	Roofing slate,	6,013 sqs.
Lump gypsum,	114,433 "		

The statistics of agriculture are as follows:

Spring wheat,	10,355,912 bushels.	Beans,	220,644 bushels.
Winter wheat,	6,367,961 "	Buckwheat,	3,726,484 "
Barley,	11,496,068 "	Corn,	3,802,830 "
Oats,	42,489,463 "	Potatoes,	47,330,187 "
Rye,	1,064,354 "	Turnips,	24,339,476 "
Peas,	9,905,720 "	Grass and clover seed,	348,605 "
Hay,	3,818,641 tons.		

The principal items of furs are 488,182 muskrats, 49,799 minks, 48,151 beavers, 19,271 moose, cariboo and deer, 17,582 martens, 37,402 seals, 12,861 foxes, 6132 otters, and 2553 bears.

The following are the statistics of manufactures:

Capital invested,	$77,964,020
Number of hands employed,	187,942
Amount of yearly wages,	40,851,009
Value of raw material,	124,907,846
Total value of products,	221,617,773

The statistics of the fisheries are as follows: Vessels, 991, men, 6984; boats, 16,876, men, 25,876; shoremen, 4647; fathoms of nets, 1,879,435.

The leading items of the product of the fisheries were 682,631 quintals of cod, 120,213 quintals of haddock, 417,300 barrels of herring, 77,925 barrels of mackerel, 2491 gallons of cod-liver oil, and 676,403 gallons of other fish oils.

The foreign trade, during 1874, was, including bullion and specie, as follows: Imports, $128,213,582; exports, $89,851,928. The trade of the Dominion of Canada is chiefly with the United States and Great Britain.

The "British North American Act, 1867," orders that the constitution of the Dominion shall be "similar in principle to that of the United Kingdom;" that the executive authority shall be vested in the sovereign of Great Britain and Ireland, and carried on in her name by a Governor-general and Privy Council; and that the legislative power shall be exercised by a Parliament of two Houses, called the Senate and the House of Commons. Provision is made in the act for the admission of Newfoundland, still an independent province of British North America, into the Dominion of Canada. The seven provinces forming the Dominion have each a separate parliament and administration, with a Lieutenant-governor at the head of

the executive. They have full power to regulate their own local affairs, dispose of their revenues, and enact such laws as they may deem best for their own internal welfare, provided only they do not interfere with, and are not adverse to, the action and policy of the central administration under the Governor-general.

The public debt of the Dominion, incurred chiefly on account of public works, and the interest on which forms the largest branch of the expenditure, was $116,082,917 on the 1st of July, 1875. The total revenue during the year ending June 30th, 1874, was $39,930,791; the total expenditure during the same period, $36,524,876.

The strength of the troops maintained by the imperial goverment, and forming the garrison of Halifax, was reduced, in 1871, to 2000 men. Besides these, Canada has a large volunteer force, and a newly organized militia. By the terms of the act passed in March, 1868, "to provide for the defence of the Dominion," the militia consists of all British subjects between the ages of 18 and 60, who are called out to serve in four classes, namely: 1st class, 18 to 30, unmarried; 2d, from 30 to 45 unmarried; 3d, 18 to 45, married; 4th, 45 to 60. A general order from the Militia Department, issued in 1874, reduced the active militia force, for the purposes of drill and pay, for the years 1874 and 1875, to 30,000 officers and men. Two schools of military instruction for infantry are established in each of the provinces of Ontario and Quebec, and one in each of the provinces of New Brunswick and Nova Scotia.

The naval forces of Canada consisted, in 1875, of 8 screw steamers, carrying 18 guns. Besides these, the government owned two fast steamers, employed on coast service, not fitted with guns, but available as gunboats.

The total shipping registered on the 31st of December, 1874, was 6930 vessels of a burthen of 1,158,363 tons. Included in this were 634 steamers, of 76,487 tons.

At the end of October, 1874, Canada had a network of railways of a total length of 4022 miles. There were, at the same period, lines of a total length of 1120 miles in course of construction, and 3000 miles more had been surveyed and concesssions granted by the government.

On June 30th, 1875, there were in the Dominion, 3943 post offices. The number of letters and post-cards sent through the mails, during the year, was 34,750,000; of newspapers, 25,480,000.

The provinces of Quebec and Ontario have separate school laws, adapted to the religious element prevailing in either. Each township in Ontario is divided into several school sections, according to the requirements of inhabitants. The common schools are supported partly by the government and partly by local self-imposed taxation, and occasionally by the payment of a small fee for each scholar. All teachers must pass an examination before a county board of educators, or receive a license from the provincial normal school, empowering them to teach, before they can claim the government allowance.

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CANADA.

(North of Nave, Columns 16 to 23.)

Minerals.

Minerals, Ores, Stone, Mining Products.

1 Gatling Gold Mining Co., Marmora, Ont.—Gold-bearing arsenical pyrites. 100

2 Russell, W. W., Ottawa, Ont.—Gold in quartz. 100

3 Lindsay, J. A., Toronto, Ont.—Gold, silver, and magnetic ores. 100

4 Jackfish Lake Gold Mining Co., Toronto, Ont.—Gold and silver in quartz. 100

5 McKellar Bros., Prince Arthur's Landing, Ont.—Gold in quartz. 100

6 McKellar, D., Prince Arthur's Landing, Ont.—Gold in quartz. 100

7 Toronto Gold Mining Co., Toronto, Ont.—Gold-bearing arsenical pyrites. 100

8 Lockwood, W. P., St. Francois, Q.—Gold. 100

9 Geological Survey, Canada, Q.

a Quartz, magnetic sand, and alluvial gold, models of gold nuggets, platinum, copper pyrites, native copper, magnetite, magnetic iron sand, hematite, iron ores, iron pyrites, native iron, antimony ore, galena, blende, barytes, mica, magnesite, kermesite, celestine, albite, orthoclase, asbestos, amethyst, agates, and Canadian rocks. 100

b Coal from Saskatchewan river, bituminous shale, crude and inspissated petroleum. 101

c Sandstones, marbles, marble column, dolomite, limestone, syenite, granite, gneiss, labradorite, jasper conglomerate, ornamental and polished slate, cut and polished stones. 102

d Hydraulic cement, gypsum. 103

e Clay, fire clay, clay for moulding, river and moulding sand, soapstone. 104

f Graphite. 105

g Lithographic stones, grindstones, whetstones, buhr stones, granite for millstones. 106

h Brine, mineral water, phosphate of lime, shell marl. 107

10 Oppenheimer Bros., Victoria, Br. Col.—Gold nugget. 100

11 Robertson, Robt., Halifax, N. S.—Representation of the gold fields of Nova Scotia. 100

12 Donaldson, T. B., Oldham, N. S.—Gold in quartz. 100

13 Sibley, A. H., Silver Islet, Ont.—Silver ores and native silver. 100

14 McKellar Bros., Fort William, Ont.—Silver ores, native silver, copper pyrites, and barytes. 100

15 Marks, T., & McKellar Bros., Fort William, Ont.—Silver ores. 100

16 Dawson, S. J., Ottawa, Ont.—Silver ores. 100

17 Cyrette, Ambrose, Fort William, Ont.—Silver ores. 100

18 Van Norman, Judge, Prince Arthur's Landing, Ont.—Native silver and silver ores. 100

19 Plumber, McIntyre, & Russ, Fort William, Ont.—Silver ores. 100

20 Eames, Prof., Pie Island, Ont.—Silver veinstone. 100

21 Stephen, George, Montreal, Q.—Silver ores. 100

22 Eureka Mining Co., Victoria, Br. Col.—Silver ores. 100

23 Mechanics' Institute, N. Westminster, Br. Col.

a Platinum. 100

b Anthracite. 101

24 West Canada Mining Co., Wellington, Ont.—Copper pyrites, copper ore. 100

25 Hime, H. L., Toronto, Ont.—Copper pyrites. 100

26 Plumber, B., Bruce Mine, Ont.—Copper pyrites. 100

27 Oliver, Geo., Perth, Ont.—Copper pyrites, bog iron ore. 100

28 Ontario Advisory Board, Toronto, Ont.

a Copper pyrites, magnetic hematite, galena. 100

b Serpentine, syenite. 102

c Graphite. 105

d Emery. 106

e Phosphate of lime, shell marl. 107

29 Shaw, P., Harvey Hill, Q.—Copper pyrites. 100

30 Stewart, W. W., Montreal, Q.—Native copper. 100

31 Douglas, Dr., Quebec, Q.—Copper ore. 100

32 Davidson, Wm., Alma, N. B.—Copper glance. 100

33 Russell, Grand Manan, N. B.—Copper glance. 100

34 Cole, Rufus, Dorchester, N. B.—Copper glance. 100

35 Sweet, R. J., Halifax, N. S.—Copper glance. 100

36 Lloyd, H. C., Madoc, Ont.—Magnetite, hematite. 100

37 Ledyard, T. D., Toronto, Ont.—Magnetite. 100

38 Haycock, Will., Templeton, Q.—Magnetite. 100

Minerals, Coal, Oil.

39 Cobourg & Petersboro' Iron Co., Belmont, Ont.—Magnetite. 100

40 Bishop, A., Bell's Corners, Ont.—Magnetite. 100

41 Foley, James, Bathurst, Ont.—Magnetite with apatite. 100

42 Baldwin, A. H., Hull, Q.—Magnetite. 100

43 Chipman, David, Berwick, N. S.—Magnetite. 100

44 Lewis, Queen Charlotte's Island, Br. Col.—Magnetite. 100

45 Cowan, A., Brockville, Ont.
a Hematite, burnt iron pyrites. 100
b Phosphate and superphosphate of lime. 107

46 Crawford, J. D., & Co., Montreal, Q.—Hematite, spathic iron ore. 100

47 Ganthier, O., St. Urbain, Q.—Titanic iron ore. 100

48 Matheson & Gilice, Sydney, N. S.—Hematite. 100

49 Ross, N. S.—Hematite. 100

50 Webster, N. S.—Hematite. 100

51 Blanchard, N. S.—Hematite. 100

52 Ottawa Iron and Steel Co., Ottawa, Ont.—Iron ore. 100

53 Stobie, James, Sault St. Marie, Ont.—Iron ore. 100

54 Duval, H. H., Quebec, Q.—Titanic iron ore. 100

55 McDougall, John, Three Rivers, Q.—Bog iron ore. 100

56 Steel Co. of Canada, Londonderry, N. S.—Iron ores. 100

57 MacKinnon, J. C., Whycocomagh, N. S.—Iron ores. 100

58 Duhamel, Dr., Quebec, Q.—Iron pyrites. 100

59 Russell, Willis, Lotbiniere, Q.—Antimony ore. 100

60 Hibbard, F., Prince William, N. B.—Antimony ore. 100

61 Hime, L. H., Toronto, Ont.—Galena and copper pyrites with silver and gold. 100

62 Sibley, Col., & J. McIntyre, Silver Islet, Ont.—Galena. 100

63 Johnson, C. J., Wallaceburg, Ont.—Galena, blende. 100

64 Devine, Thos., Toronto, Ont.—Galena. 100

65 Wearne, Capt., Toronto, Ont.—Galena, blende. 100

66 Markham, A., Hammond, N. B.—Pyrolusite. 100

67 Brown, J., N. S.—Pyrolusite. 100

68 Galway Lead Mining Co., Galway, Ont.—Barytes, calcspar. 100

69 Dolphin Manufacturing Co., Five Islands, N. S.—Barytes. 100

70 Starr, John, Halifax, N. S.—Barytes. 100

71 Baker Mine, North Burgess, Ont.—Mica in plates. 100

72 Ackerly, James, Five Islands, N. S.—Dogtooth spar. 100

73 Dopp, Geo., Berlin, Ont.—Amethyst, fluorspar, and pyrites. 100

74 McVicar, Geo., Toronto, Ont.—Amethyst. 100

75 Blackwood, R., Toronto, Ont.—Amethyst, fluorspar, and pyrites. 100

76 Morrison, W. A., Toronto, Ont.—Collection of Canadian precious stones. 100

77 Poole, H. S., Halifax, N. S.—Ores and associated rocks. 100

78 Honeyman, Dr., Halifax, N. S.—Collection of Nova Scotia fossils. 100

79 How, Henry, Windsor, N. S.—Collection of minerals. 100

80 Bailey, G., Grand Lake, N. B.—Coal. 101

81 Hall, William, Springhill, N. S.—Coal. 101

82 Mitchell, Henry L., Glace Bay Mines, N. S.—Coal. 101

83 McQueen, Wm., Blockhouse Mines, N. S.—Coal. 101

84 Brown, R. H., Sydney Mines, N. S.—Coal. 101

85 McDonald, R. A., International Mines, N. S.—Coal. 101

86 McKeen, David, Caledonia Mines, N. S.—Coal. 101

87 Archibald, T. D., Gowrie Mines, N. S.—Coal. 101

88 Sutherland, James, Big Glace Bay, N. S.—Coal. 101

89 Fraser, J. W., Victoria Mines, N. S.—Coal. 101

90 Routledge, William, Gardiner Mines, N. S.—Coal. 101

91 Campbell, C. J., N. Campbellton, N. S.—Coal. 101

92 Hoyt, Jesse, Acadia Mines, N. S.—Coal. 101

93 Hudson, James, Albion Mines, N. S.—Coal. 101

94 Simpson, James, Intercolonial Mines, N. S.—Coal. 101

95 Greener, John, Vale Calling, N. S.—Coal. 101

96 Bennett, Wm., Scotia Mines, N. S.—Coal. 101

97 Sterling, E., Cape Breton, Big Glace Bay, Sydney, and L. Mines, N. S.—Coal. 101

98 Union Mining Co., Union Mines, Comox, Br. Col.—Coal. 101

99 Baynes Sound Mining Co., Baynes Sound Mines, Br. Col.—Coal. 101

100 Vancouver Mining Co., Vancouver Mines, Br. Col.—Coal. 101

101 Wellington Mining Co., Wellington Mines, Br. Col.—Coal. 101

102 Ketchum, E. K., Albert Mines, N. B.—Albertite and bituminous shale. 101

103 Byers, J., Albert Mines, N. B.—Albertite. 101

104 Smith, Wm., Toronto, Ont.—Peat. 101

105 Grand Trunk R. R., Montreal, Q.—Peat. 101

106 Griffin, R. A., Huntingdon, Q.—Peat. 101

107 Belliveau Albertite & Oil Co., Westmoreland, N. B—Albertite mineral oil. 101

108 Waterman Bros., London, Ont.—Petroleum and products. 101

Stone.

109 Gibson, Robert L., Grimsby, Ont.—Building sandstones. 102

110 Farquhar & Booth, Esquesing, Ont.—Building sandstones and flagging. 102

111 Skead, Gloucester, Ont.—Building sandstones. 102

112 Londley, Beckwith, Ont.—Building sandstones. 102

113 Rankin, John, Pembroke, Ont.—Building sandstones. 102

114 Bishop, Henry, Nepean, Ont.—Building sandstones. 102

115 Decew, William, Oneida, Ont.—Building sandstones. 102

116 McGregor, Lachute, Q.—Building sandstones and limestones. 102

117 Goodfellow, Joseph, North Esk, N. B.
a Building sandstones. 102
b Grindstones. 106

118 Dor. U. Free Stone Co., Budreau, Vil., N. B.—Building sandstones. 102

119 Caledonia Free Stone Co., Rockland, N. B.—Building sandstones. 102

120 Roberts & Co., Mary's Point, N. B.—Building sandstones. 102

121 Bayview Quarry Co., Albert City, N. B.—Building sandstones. 102

122 Hopewell Quarry Co., Shepody Mt., N. B.—Building sandstones. 102

123 McQuarrie, John, George River, N. S.—Building sandstones. 102

124 Gilpin, Edwin, Springville N. S.
a Building sandstones. 102
b Limestone. 103
c Fire brick and fire clay. 104

125 Heustis, R. B., Wallace, N. S.—Building sandstones. 102

126 McDonald, George J., Cornwallis, N. S.—Building sandstones. 102

127 Peters, Henry S., Halifax, N. S.—Building sandstones. 102

128 Vancouver Coal Co., Vancouver Island, Br. Col.—Building sandstones, marble, limestone. 102

129 Howley, James, Montreal, Q.
a Building and flagging sandstones. 102
b Sandstone for glass-making. 104

130 Pitton & Co., Quebec, Q.—Sandstone, flagging, curbstones. 102

131 Worthington & Co., Montreal, Q.
a Polished marble. 102
b Limestone. 103

132 Somerville, P. T., Arnprior, Ont.—Marble monument. 102

133 Halon, Alphonse, Quebec, Q.—Marble. 102

134 Benjamin, H., & Co., Montreal, Q.
a Marble. 102
b Lime. 103

135 Brunet, Joseph, Montreal, Q.—Marble monument. 102

136 Langevin, A. B., Quebec, Q.—Marble. 102

137 Silver, John, Halifax, N. S.—Marble. 102

138 McQuarrie, John, George River, N. S.—Marble and syenite. 102

139 Ingram, Wm., St. George, N. B.—Red granite clock case. 102

140 Baxter B., Cayuga, Ont.
a Dolomite. 102
b Lime and limestone, hydraulic cement. 103

141 Barclay & Morrison, Stony Mount, Man.
a Dolomite. 102
b Clay. 104

142 Hayslip, John, Goderich, Ont.—Limestone. 102

143 Young, Y., & G., Gloucester, Ont.—Limestone. 102

144 Levallée, N., Carleton Place, Ont.—Limestone. 102

145 Kirkpatrick Quarry, Parrsboro', Q.—Limestone. 102

146 Forsyth, Robert, Montreal, Q.—Red granite monument. 102

147 Bay of Fundy Red Granite Co., St. George, N. B.—Red polished granite. 102

148 Danville School Slate Co., Danville, Q.—Ornamental slate panel, slates in blocks. 102

149 Danville Slate Co., Danville, Q.—School slates. 102

150 Rockland Slate Quarry, Melbourne, Q.—Slates. 102

151 DeCew, William, Cayuga, Ont.
a Lime and limestone. 103
b Sandstone for glass-making and furnace lining. 104

152 Whitson & Slater, St. Marys, Ont.—Lime and limestone. 103

153 Dunbar, George, Rockwood, Ont—Lime and limestone. 103

154 Lewis, Levi, Kincardine, Ont.—Lime and limestone. 103

155 Buxton, George, Goderich, Ont.—Lime and limestone. 103

156 Emsley, R., Guelph, Ont.—Lime and limestone. 103

157 Ballantyne, Mrs., Galt, Ont.—Lime and limestone. 103

158 Farquhar, E., & C., Dundas, Ont.—Lime and limestone. 103

159 Goudle, Thomas, Limehouse, Ont.—Lime and limestone. 103

160 Lavallée, N., Carleton Place, Ont.—Lime and limestone. 103

161 Baker, W., Arnprior, Ont.—Lime and limestone. 103

162 Quebec Advisory Board, Quebec, Q.
a Lime and limestone. 103
b Porcelain clay. 104
c Phosphate of lime, chalk. 107

163 Garvies, C. A., Montreal, Q.—Lime and limestone. 103

164 Robitaille, Dr., Quebec, Q.
a Limestone. 103
b Marl. 107

165 Albert Manufacturing Co., Hillsboro', N. B.—Limestone. 103

166 Quesnal, Sheriff, Arthabaska, Q.—Lime and hydraulic cement. 103

167 Douglas, David, Pugwash, N. S.—Lime. 103

168 Goudie, Thomas, Limehouse, Ont.—Hydraulic cement. 103

169 McKay, Wm., Ottawa, Ont.—Hydraulic cement and artificial stone. 103

170 Buchanan Mineral Co., Hamilton, Ont.—Cement and mastics. 103

171 Gauvreau, P., & Co., Quebec, Q.—Cements and plasters, artificial stone. 103

THE SUNDAY SCHOOL TIMES

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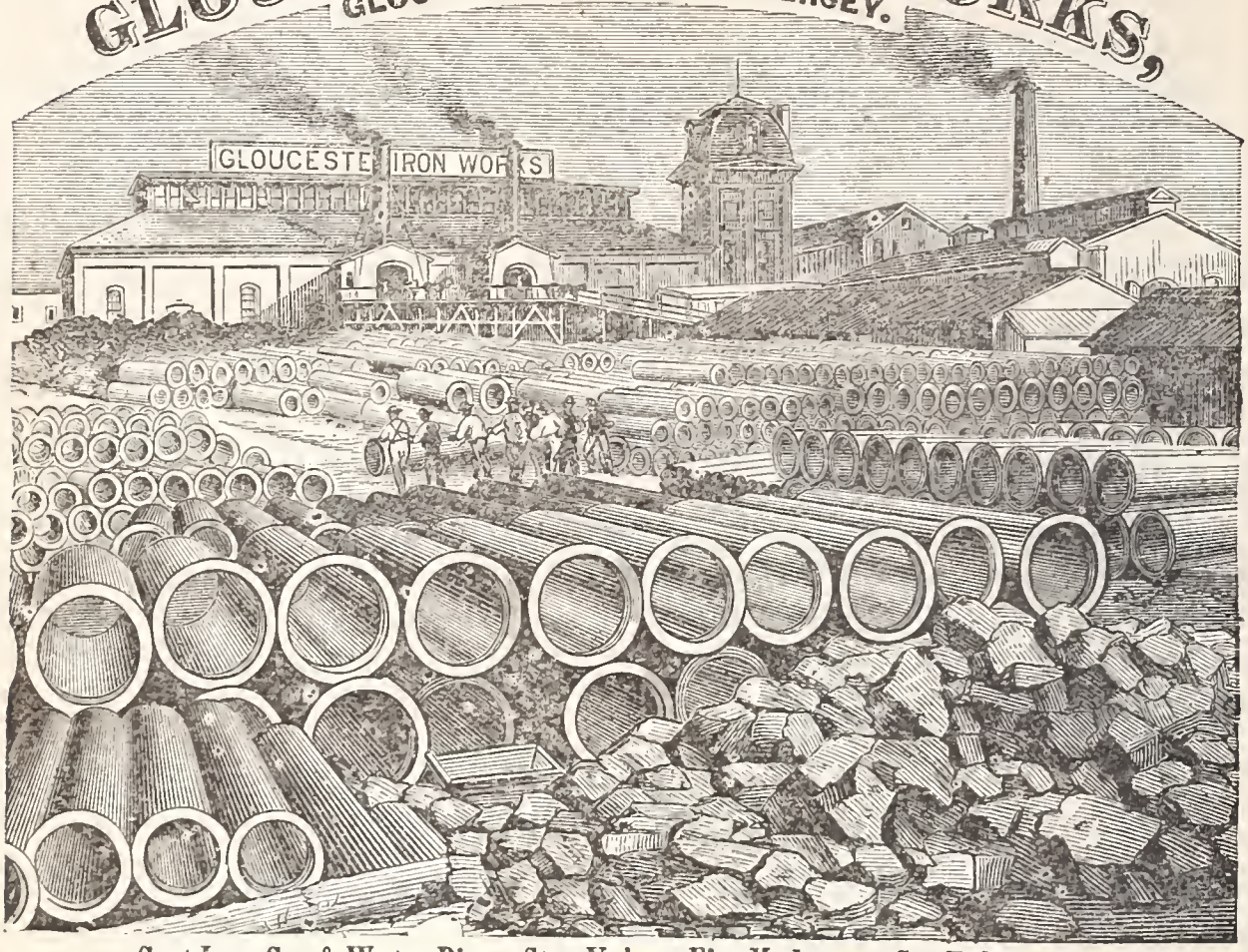

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FRANCE.—STATISTICAL PREFACE.

FRANCE is the most westerly state of Central Europe, extending from 42° 20′ to 51° 5′ north latitude, and from 7° 45′ east to 4° 45′ west longitude. It is bounded on the north by the Channel and the Straits of Dover, which separate it from England, by Belgium, the grand duchy of Luxembourg; on the east by Germany, Switzerland, and Italy, on the south by the Mediterranean and Spain, from which it is separated by the Pyrenees, and on the west by the Atlantic Ocean (the Bay of Biscay). The greatest length of France, from Dunkirk, in the north, to the Col de Falguere, in the south, is about 620 miles; its greatest breadth from east to west, from the boundary line in the Vosges to Cape St. Matthieu, in Finisterre, is about 550 miles. The superficial area of France, including the two Savoy provinces and Corsica, is reckoned at about 201,600 square miles. The possessions of France, which are situated in the non-European parts of the world, have a total superficial area of 463,827 square miles, and the largest is Algeria, with an area of 258,310 square miles. France is divided into 86 departments. The total population, exclusive of Algeria and the colonies, was given (in 1872) at 36,102,921.

The colonies and foreign possessions of France in Africa are Algeria, Senegambia, the islands of Bourbon (Reunion), St. Marie, Mayotte, and Nussi-be, in the Indian Ocean, and Gaboon, on the coast of Guinea. The total possessions in Africa cover an area of about 270,000 square miles, with a population of 2,840,000 souls. In America are the islands of Martinique and Guadaloupe in the West Indies, French Guiana, or Cayenne, with St. Pierre and Miquelon, near Newfoundland; forming together an area of 45,000 square miles, with a population of 345,000. In Asia, the Indian settlements of Pondicherry, Mahe, Karikal, Yanaon, and Chaudernagore, comprise 19,600 square miles, with a population of 265,000. A settlement has also

been made in Cochin China, embracing 21,700 square miles and 1,336,000 inhabitants, and a protectorate declared over the Empire of Anam. In the Pacific Ocean are two groups, the Marquesas and Tahiti, and New Caledonia, with the Loyalty Isles, the whole forming an area of 11,182 square miles, with 87,000 inhabitants.

The following table gives the population, in 1872, of some of the largest cities in France:

Paris,	1,850,000
Lyons,	323,000
Marseilles,	313,000
Bordeaux,	194,000
Lille,	158,000
Toulouse,	125,000
Nantes,	119,000
St. Etienne,	111,000
Rouen,	102,000

There are four great mountain chains belonging to France—the Pyrenees which separate the French territory from Spain; the Cevenne-Vosgian range, running north and south between the Moselle and the new boundary line; the Alps, which separate the Swiss territory from the provinces of Savoy and Nice; and the Sardo-Corsican range which belongs, as the name implies, to the islands of Sardinia and Corsica. The highest peaks in the Pyrenees are the Maladetta and Mont Perdu (10,886 feet and 10,994 feet); in the Cevenno-Vosgian range, the greatest height (the Widderkalm) does not greatly exceed 7000 feet. The French portion of the Alps now includes several of the highest mountains and most elevated passes of the ranges, as Mont Blanc, 15,744 feet; Mont Iseran, 13,272 feet; Mont Cenis, 11,457 feet; and the pass of Little St. Bernard, 7190 feet, etc. In Corsica, the highest peak rises to an elevation of 9000 feet. The grand water-shed of France is the Cevenno-Vosges chain, which determines the direction of the four great rivers, the Seine, the Loire, the Garonne, and the Rhone; the first three of which flow north-west into the Bay of Biscay and the English Channel, and the fourth into the Gulf of Lyons.

The entire extent of river navigation in France amounts to 5500 miles, or 8,900,000 metres, while the 99 larger canals, which have been constructed either to connect the various river courses or to supply entirely new channels of water communication, extend over a length of 2900 miles, or 4,700,000 metres. The most important of these works are the canals connecting Nantes and Brest, and the Rhone with the Rhine, and those of Berry, Nivernais, and Bourgogne.

France is peculiarly rich in mineral springs, of which there are said to be nearly 1000 in use. Of these, more than 400 are situated in the group of the Pyrenees, where there are 93 establishments for their systematic use. It is estimated that there are, moreover, fully 4000 springs not hitherto employed.

According to M. Maurice Block's estimate, the physical and agricultural character of the soil of France may be comprised under the following heads:

	HECTARES.*
Mountainous districts, heaths, and commons,	9,944,839
Rich land,	7,276,399
Chalk, or lime districts,	9,788,197
Gravel, stony and sandy,	15,951,618
Clay, marshy, miscellaneous,	9,807,577
	52,768,600

* The *hectare* is equal to about 2.47 English acres.

The same writer further subdivides the soil of France, according to its actual employment, under the following heads:

	PER CENT. OF THE WHOLE ACRE.
Arable lands,	48.3
Meadow lands,	9.7
Vineyards,	3.7
Cultivated lands,	17.8
Roads, streets, public walks, etc.,	3.7
Forest and unproductive lands,	16.8

France possesses one of the finest climates in Europe, although, owing to its great xtent of area, very considerable diversities of temperature are to be met with. The mean annual temperature of different parts of France has been estimated as follows, by Humboldt: Toulon, 62° F.; Marseilles, 59.5°; Bordeaux, 56°; Nantes, 55.2°; Paris, 51.2°; Dunkirk, 50.5°.

The following are the statistics of agricultural productions for the year 1869:

	HECTOLITRES.*
Wheat,	108,000,000
Rye,	24,000,000
Barley and oats,	90,000,000
Maize,	10,000,000
Potatoes,	100,000,000

The production of beet-root sugar in 1872–73 amounted to 418,000 tons. The average yearly produce of the vineyards of France is estimated at about 50,000,000 of hectolitres (about 1,000,000,000 of gallons). Of this about one-seventh is made into brandy.

The principal forest trees are the chestnut and beech on the central mountains, the oak and cork tree in the Pyrenees, and the fir in the Landes. The destruction of the national forests has been enormous within the last two centuries, but measures have been taken in recent years to plant wood, in order to protect those mountain slopes which are exposed to inundations from mountain torrents, and to provide a supply for the ever-increasing demand for fuel. About one-seventh of the entire territory of France is still covered with wood. Turf taken from the marshy lands is extensively used, more especially in the rural districts, for fuel.

According to the census of 1866—the most recent in regard to animals—there were in France 3,312,637 horses, 518,000 asses, 350,000 mules, 12,733,000 horned cattle, 30,386,000 sheep, 5,500,000 swine, and 1,680,000 goats. There were, according to the *Statistique Agricole* for 1858, about 3,000,000 of beehives, valued at rather more than 24,000,000 of francs; the mean annual returns are, for honey, 6,670,000, and for wax, 1,620,000 kilogrammes.† Poultry constitutes an important item of farm produce in France, estimated at 45,500,000 of francs, while the eggs and feathers yield 35,250,000 of francs.

The following figures show the condition of the merchant navy of France on the 31st of December, 1873:

		TONNAGE.	MEN.
Sailing vessels,	15,043	882,866	88,541
Steam vessels,	516	185,165	10,448
	15,559	1,068,031	98,989

The *cabotage*, or internal coasting traffic, is a great source of financial wealth to the State, to which all rivers and canals belong. In 1873, it employed 2776 vessels, with a tonnage of 122,850 and an equipment of 10,871.

* The *hectolitre* equals 2.75 bushels.
† The kilogramme equals 2.2 pounds avoirdupois.

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AMERICAN FLASK AND CAP Company.
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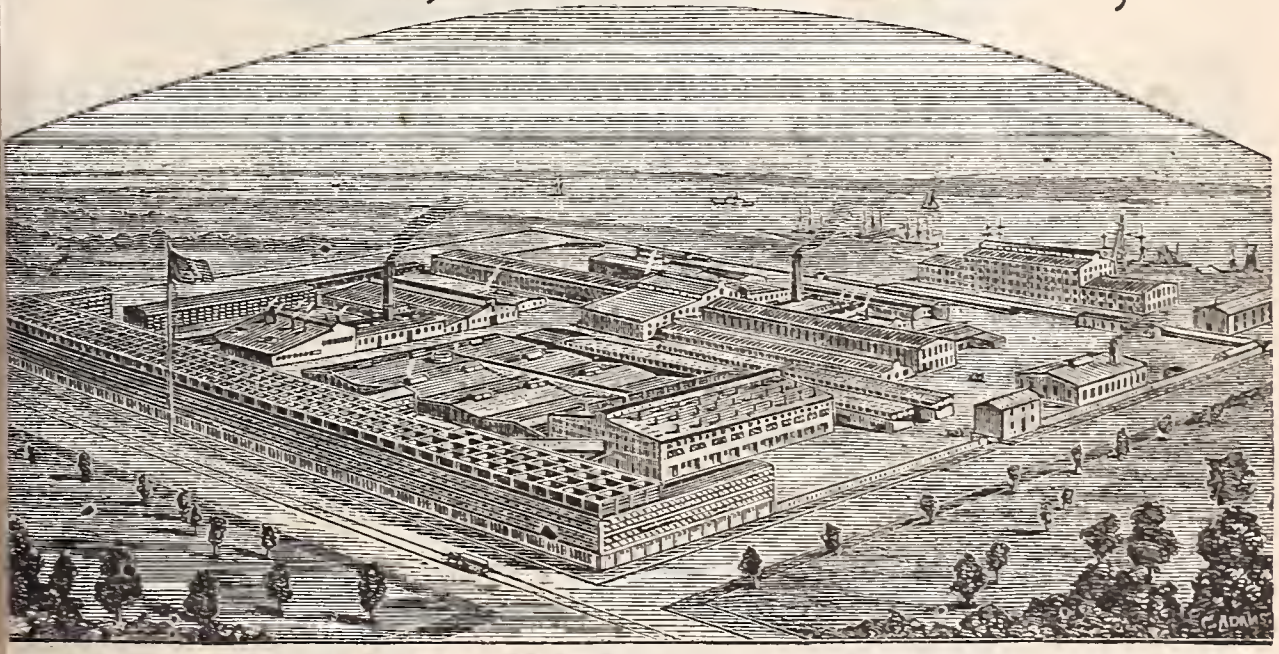

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The chief mineral products of France are coal and iron, in the excavation of which nearly 250,000 men were employed in 1868. The production of coal in 1868 was 132,000,000 of quintals, the quintal being equal to 1.97 hundredweight. During the same year, there were 150 iron mines in operation, yielding 34,500,000 of quintals, more than half of this quantity being obtained from the five departments of Haute-Marne, Haute-Saone, Cher, Moselle, and Nord. Argentiferous galena, a little silver and gold, copper, lead, manganese, antimony, and tin occur, but hitherto their working has not proved very productive. The department of Charento-Inferieure yields the largest amount of salt, the mean annual produce being 1,500,000 of quintals (2,500,000 of francs), which is fully one-third of the entire annual produce of the whole country. France derives about 41,000,000 of francs from its quarries of granite and freestone, its kaolin, marbles, sands, lithographic stones, millstones, etc. Granite and syenite are found in the Alps, Vosges, Corsica, Normandy, and Burgundy; porphyry in the Vosges; and basalt and lava, for pavements, in the mountains of Auvergne. Marble is met with in more than 40 departments; alabaster occurs in the Pyrenees; the largest State quarries are near Cherbourg and St. Lo.

The following list gives an approximate estimate of the value of the chief products of French industry:

	MILLIONS OF FRANCS.
Linen fabrics,	250
Cotton fabrics,	650
Woolen fabrics,	950
Silk fabrics,	1000
Mixed fabrics,	330
Jewelry, watchmaking,	35
Gilt wares,	12
Minerals, mines, salt, etc.,	600
Articles of food, as sugar, wines, etc.,	364
Skins, leather, oils, tobacco,	556
Bone, ivory, isinglass, etc.,	30
Chemical products,	80
Ceramic arts,	86
Paper, printing,	60
Forests, fisheries,	98

The total imports, for 1873, were 4,576,000,000, and the total exports, for the same year, 4,822,000,000 of francs.

France was proclaimed a republic on the 4th of September, 1870. According to the law of February 25th, 1875, the legislative power is vested in the two Houses, the Chamber of Deputies and the Senate. The Chamber of Deputies is elected by universal suffrage. The Senate is composed of 300 members, 225 of whom are elected by the departments and the colonies, and 75 by the National Assembly. The President of the republic is elected by a majority of the votes of the Senate and Chamber of Deputies, united as the National Assembly. His term of office is for seven years, and he is eligible for re-election.

According to the budget for 1876, the estimated receipts for the year are put down at 2,575,028,582 francs, and the expenditures at 2,570,505,513. The public debt is 23,403,000,000 francs.

The nominal strength of the army, on a peace footing, is given in the latest government returns as 490,332 men; on a war footing, 1,750,000.

The navy of France was composed, at the end of 1873, of 62 ironclads, 264 unarmored screw steamers, 62 paddle steamers, and 113 sailing vessels.

According to the official report for December, 1874, the railways in operation measure 20,711 kilometres, or about 12,866 miles. With the exception of less than 500 miles, the railways of France are held by six companies, which are under the superintendence of the State.

The number of letters forwarded by the post office, in 1874, was 341,068,000; newspapers, postal cards, and parcels, 331,786,000.

At the end of 1873, there were 45,942 kilometres of lines of telegraphs, comprising 123,669 kilometres of wire. The number of messages sent, in 1873, was 6,225,000, of which nearly one-fourth were international messages. There were annual deficits since the establishment of the public telegraph department, in March, 1851. There were 2206 telegraph offices at the end of 1873.

Public instruction is presided over in France by a special ministry. Nearly half the expenses connected with it are defrayed by the State, and the remainder by the departments. There are 15 academies, located in the following towns: Aix, Besancon, Bordeaux, Caen, Clermont, Dijon, Douai, Grenoble, Lyon, Montpellier, Nancy, Paris, Poitiers, Rennes, Toulon. These academies are divided into the five faculties of theology, law, medicine, sciences, and literature, and supplemented by various superior and preparatory schools. The professors are paid partly by the State and partly by fees. Secondary instruction has received an immense impetus during the present century. The different departments share very unequally in the diffusion of education, and it may be generally observed that the proportion of the educated is highest in the northern and eastern districts of France. France supports numerous colleges and schools for instruction in special branches of knowledge. There are also numerous agricultural, forest, farming, and veterinary schools, besides the Ecole Polytechnique, specially designed to prepare youths for the public services; and military and naval colleges at St. Cyr, Saumur, Paris, Vincennes, Brest, Toulon, and St. Denis.

Paris possesses several libraries belonging to, and supported by, the State, but freely opened to the public. There are 338 public libraries in the provinces, to all of which access is afforded in the most liberal spirit. France is rich in public galleries of painting, statuary, and articles of *vertu*. The expenses of secondary and primary education, literary and scientific institutions, etc., are charged in the budget for 1876 at 44,912,545 francs.

(Detailed information as to the colonial dependencies of France will be found under the appropriate headings in other portions of the catalogue.)

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The French exhibits in Mining and Metallurgy are installed in the Agricultural Building, and catalogued in Volume IV.

GERMANY.—STATISTICAL PREFACE.

THE German Empire occupies the central portion of Europe, and extends from 6° to 22° 40′ east longitude and 49° 7′ to 55° 50′ north latitude. It is bounded on the north by the German Ocean, the Danish Peninsula, and the Baltic; on the east by Russia and Austria; on the south by Russia, Austria, and Switzerland, and on the west by France, Belgium, and the Netherlands. The population (1871) is about 41,000,000. Its area is estimated at 208,000 square miles, or about one-sixteenth of that of all Europe. The coast line measures about 930 miles.

Germany is composed of an aggregation of 26 different States. The following list gives the names of these States, their population, area, and the number of members representing each in the Bundesrath, or Federal Council, and the Reichstag, or Imperial Diet:

STATES.	POPULATION IN 1871.	AREA IN SQUARE MILES.	NO. OF MEMBERS IN BUNDESRATH.	NO. OF DEPUTIES IN REICHSTAG.
Kingdoms:				
1. Prussia,	24,691,307	139,751	17	236
2. Bavaria,	4,863,450	29,280	6	48
3. Saxony,	2,556,244	5,780	4	23
4. Wurtemburg,	1,818,539	7,532	4	17
Grand Duchies:				
5. Baden,	1,461,562	5,850	3	14
6. Hesse,	852,894	2,962	3	9
7. Mecklenburg-Schwerin,	557,897	5,136	2	6
8. Saxe-Weimar,	286,183	1,403	1	3
9. Mecklenburg-Strelitz,	96,982	1,130	1	1
10. Oldenburg,	314,777	2,470	1	3
Duchies:				
11. Brunswick,	311,764	1,425	2	3
12. Saxe-Meiningen,	187,884	955	1	2
13. Saxe-Altenburg,	142,122	510	1	1
14. Saxe-Coburg-Gotha,	174,339	760	1	2
15. Anhalt,	203,437	896	1	2
Principalities:				
16. Schwarzburg-Rudolstat,	75,523	367	1	1
17. Schwarzburg-Sondershausen,	67,191	332	1	1
18. Waldeck,	56,224	438	1	1
19. Reuss (altere Linie),	45,094	123	1	1
20. Reuss (jungere Linie),	89,032	320	1	1
21. Schaumburg-Lippe,	32,059	170	1	1
22. Lippe-Detmold,	111,135	438	1	1
Free Towns:				
23. Lubeck,	52,158	110	1	1
24. Bremen,	122,402	97	1	1
25. Hamburg,	338,974	158	1	3
26. Alsace-Lorraine,	1,549,459	5,590		
	41,058,632	208,613	58	382

The *Almanac de Gotha*, for 1876, divides the population of the German Empire, in regard to nationality, as follows: Germans, 37,820,000; Poles, 2,450,000; Wends, 140,000; Czechs, 50,000; Lithuanians and Courlanders, 150,000; Danes, 150,000; French and Walloons, 210,000. The Germans admit of being divided into high and low Germans; the phraseology of the former is the cultivated language of all the German States; that of the latter, known as *Platt-Deutsch*, is spoken in the north and northwest. The Poles are found exclusively in the east and northeast of Prussia; the Czechs in Silesia, about Appeln and Breslau; the Wends, in Silesia, Brandenburg, and Prussian Lusatia; the Lithuanians and Courlanders in east Prussia; the Danes, in Schleswig; the Walloons, about Aix-la-Chapelle, in Rhenish Prussia, and the French, partly in the same region, and in Alsace and Lorraine.

Germany presents two very distinct physical formations. First, a range of high table land, occupying the centre and southern parts of the country, interspersed with numerous ranges and groups of mountains, the most important of which are the Harz and Teutoburger in the north, the Taunus and Thuringerwald in the middle, and the Schwarzwald and Raube Alps in the south, and containing an area, including Alsace and Lorraine, of 110,000 square miles. Second, a vast sandy plain, which extends from the centre of the empire north to the German Ocean, and including Schleswig-Holstein, contains an area of about 98,000 square miles. This great plain, stretching from the Russian frontier on the east to the Netherlands on the west, is varied by two terrace-like elevations. The one stretches from the Vistula into Mecklenburg, at no great distance from the coast of the Baltic, and has a mean elevation of 500 to 600 feet, rising in one point near Danzig to 1020 feet; the other line of elevations begins in Silesia, and terminates in the moorlands of Luneberg, in Hanover, its course being marked by several summits from 500 to 800 fect in height. A large portion of the plain is occupied by sandy tracts, interspersed with deposits of peat; but other parts are moderately fertile, and admit of successful cultivation.

In respect of drainage the surface of Germany belongs to three different basins. The Danube, from its source in the Schwarzwald to the borders of Austria, belongs to Germany, and through this channel the waters of the greater part of Bavaria are poured into the Black Sea, thus opening up communication with the east. The greater part of the surface, however (about 185,000 square miles), has a northern slope, and belongs partly to the basin of the North Sea, and partly to the basin of the Baltic. The chief German streams flowing into the North Sea are the Rhine, the Weser, and the Elbe; into the Baltic, the Oder and the Vistula.

The most important of the numerous canals of Germany are the Ludwig's canal, in Bavaria, connecting the Danube and Main, and thus opening a communication between the Black Sea and the German Ocean; the Finow and Friedrich Wilhelm's canals, in Brandenburg; the Plauc canal, connecting the Elbe and the Havel; and the Kiel and Eyder canal, uniting the Baltic and the German Ocean. Numerous lakes occur both in the table-land of southern Germany, and in the lowlands of the northern district, but few of them are of any great size. Mineral springs occur principally in Nassau, Wurtemburg, Baden, Bavaria, and Rhenish Prussia. Many of these springs have retained their high reputation from the earliest ages.

The climate of Germany presents less diversity than a first glance at the map might lead one to infer, for the greater heats of the more southern latitudes are considerably modified by the alpine character of the country in those parallels, while the cold of the northern plains is mitigated by their vicinity to the ocean. The average decrease in the mean temperature is in going from south to north, about 1° F. for every 52 miles; and in going from west to east, about 1° F. for every 72 miles. The line of perpetual snow varies from 7200 to 8000 feet above the level of the sea. The mean annual fall of rain is 20 inches.

The following table shows the mean temperature at different points:

	MEAN ANNUAL TEMPERATURE.	SUMMER.	WINTER.
Hamburg,	47.	64	30
Dresden,	48.	67	29
Frankfort-on-the-Main,	48.5	66	31
Berlin,	46.5	66	27
Hanover,	48.	63	33
Königsberg,	43.	62	24

Germany is rich in mineral products, among which the most important are silver, found in the Hartz mountains; iron in numerous mountain ranges; salt in many parts of the country; coal in Rhenish Prussia, Silesia. Cobalt, arsenic, sulphur, saltpetre, alum, gypsum, bismuth, pumice-stone, tripoli-slate, kaolin, emery, ochre, and vitriol, are all among the exports of Germany.

The following figures show the product of the principal mining industries of Germany (exclusive of Alsace and Lorraine) for the year 1870:

	NO. OF WORKS.	PERSONS EMPLOYED.	PRODUCT IN CWT.	VALUE IN THALERS.
Coal (including brown coal),	1362	145,782	680,060,074	61,863,399
Iron ore,	1258	24,793	58,550,539	7,116,828
Zinc ore,	72	9,797	7,335,603	2,315,429
Lead ore,	174	18,057	2,111,810	5,511,235
Copper ore,	3	6,156	4,147,627	1,619,938

The yield of salt, for the same year, was 14,658,990 hundredweight, from 69 works, employing 4610 persons, and valued at 3,926,650 thalers.

The leading products of the metallurgical industries are given as follows:

	WORKS.	PERSONS EMPLOYED.	AMOUNT PRODUCED IN CWT.	VALUE IN THALERS.
Cast iron,	631	39,525	29,942,264	49,251,650
Wrought iron (including wire, bars, and manufactured iron of various kinds),	354	43,849	17,437,766	57,490,284
Steel,	216	12,892	3,399,027	22,747,626
Zinc,	53	6,256	1,727,570	10,212,259
Silver,	10	1,601	(lbs.) 185,847	5 549,943
Lead (products of),	17	1,513	1,195,753	6,951,164
Copper,	28	1,971	174,687	4,667,535

The entire production of mines, furnaces, salt works, etc., is given as 824,965,732 hundredweight, valued (including 186,270 pounds of gold and silver) at 246,482,099 thalers.

The vegetable products comprise a very large proportion of the European flora. All the ordinary cereals are extensively cultivated in the north, and largely exported, chiefly from Wurtemberg and Bavaria; hemp and flax, madder, woad, and saffron grow well in the central districts, where the vine, the cultivation of which extends in suitable localities as far north as 51°, is brought to greater cultivation—the best wine-producing districts being the valleys of the Danube, Rhine, Main, Neekar, and Moselle, which are, moreover, generally noted for the excellence of their fruits and vegetables. Tobacco is grown in sufficient quantities for extensive exportation on the Upper Rhine, the Werra, and Oder. The hops of Bavaria have a high reputation, and the chicory grown in that country and in the district between the Elbe and

the Weser finds its way all over Europe as a substitute for coffee. The average annual product of cereals is approximately as follows:

Rye,	89,000,000 hectolitres.*
Oats,	87,000,000 "
Wheat,	34,000,000 "
Barley,	30,000,000 "

The average annual potato crop amounts to 272,000,000 hectolitres. The production of beets, in 1872, was over 61,000,000 hundredweight. A fair yield of wine is about 4,500,000 hectolitres, and of tobacco, about 700,000 hundredweight.

The most extensive forests are found in central Germany, and in some parts of Prussia, while the northwestern parts of the great plain are deficient in wood, the place of which is in some degree supplied by the abundance of turf yielded by the marshy lands. Germany has long been noted for the good breed of horses raised in the northern parts of the continent, while Saxony, Silesia, and Brandenburg have an equal reputation for their sheep-flocks, and the fine quality of the wool which they yield. The rich alluvial flats of Mecklenburg and Hanover are celebrated for their cattle; the forests of northern and central Germany abound in swine, and in small game of various kinds; while the Bavarian Alps afford shelter to the larger animals, as the chamois, the red deer and wild goat, the fox, marten, and wolf.

According to the last enumeration of live stock, there were in Germany 3,500,000 horses, 15,000,000 cattle, 30,000,000 sheep, 8,000,000 swine, and 2,000,000 goats. The wool crop for 1869 amounted to 750,000 hundredweight.

Among the fishes of Germany, the most generally distributed are carp, salmon, trout, and eels; the rivers contain also crayfish, pearl-bearing mussels, and leeches. The oyster, herring, and cod fisheries constitute important branches of industry on the German shores of the Baltic and North Seas.

The preservation and cultivation of woods receive almost as much attention in Germany as agriculture, and, like the latter, are elevated to the rank of a science. The larger woods and forests in most of the states belong to the government, and are under the care of special boards of management, which exercise the right of supervision and control over all forest lands, whether public or private. The value of the forests of Germany was, in 1873, estimated at 666,000 thalers.

The oldest and most important of the German industrial arts are the manufactures of linen and woolen goods. The chief localities for the cultivation and preparation of flax, and the weaving of linen fabrics, are the mountain valleys of Silesia, Lusatia, Westphalia, the Harz, and Saxony (for thread laces); while cotton fabrics are principally made in Rhenish Prussia and Saxony. The same districts, together with Pomerania and Bavaria, manufacture the choicest woolen fabrics, including damasks and carpets. Toys, wooden clocks, and wood-carvings, which may be regarded as almost a specialty of Germany industry, are carried to the greatest perfection in the hilly districts of Saxony, Bavaria, and the Black Forest. The best iron and steel manufactures belong to Silesia, Hanover, and Saxony. Silesia probably possesses the finest glass manufactories; while Saxony and Prussia stand pre-eminent for the excellence of their china and earthen wares. Augsburg and Nuremberg dispute with Munich and Berlin the title to pre-eminence in silver, gold, and jewelry work, and in the manufacture of philosophical and musical instruments; while Leipzig and Munich claim the first rank for type foundries, printing, and lithography. The trading cities of northern Germany nearly monopolize the entire business connected with the preparation of tobacco, snuff, etc., the distillation of brandies, and the manufacture of sugar from the beet, potato, and other roots; while vinegar and oils are prepared almost exclusively in central and southern Germany.

The constitution of the empire is confederate, under the presidentship of the King of Prussia, who bears the hereditary title of German Emperor. He has the right

* The hectolitre equals 2.75 bushels.

and duty of representing the empire in all respects of international law, of declaring war in the name of the empire, making peace and treaties, etc. For a declaration of war the consent of the Bundesrath is necessary. He is the commander-in-chief of the whole army and navy, in peace as well as in war, except the military powers of Wurtemberg and Bavaria, which—in times of peace only—form separate corps under the command of their respective kings. He names and dismisses the officers and functionaries of the empire. His orders, issued in the name of the empire, must be countersigned by the Chancellor, who, as the first minister of the empire, is by his signature responsible for them.

The legislative powers lie in the *Bundesrath* and the *Reichstag*. The former consists of the delegates of the confederate governments, representing in all fifty-eight votes. The Reichstag has 382 members directly elected by the secret ballot of the people. The bills promulgated by these two assemblies in accordance are compulsory on all governments of the empire, and annul *eo ipso* all possible institutions contradictory to them in the several States.

The empire has no debt. The debts of the separate States amounted, in 1873, to 1,093,800,000 thalers, 589,300,000 of which sum was for railways.

The army consists, on a peace footing, of about 400,000 men; on a war footing, of about 1,300,000. The navy comprises 51 vessels, of which number 47 are steamers, of 77,130 horse-power, 64,198 tons burthen, and carrying 321 guns; and 4 sailing vessels (1 frigate and 3 brigs) mounting 36 guns.

The multiplicity of small States into which Germany was long broken up, opposed great obstacles to the development of commerce; but the difficulty has to some extent been obviated by the establishment of the *Zollverein*, or "Customs confederation." The Hanse Towns, Hamburg and Bremen, do not belong to it, being free ports; but it comprises all the other states of the empire and the grand duchy of Luxembourg.

The estimated value of goods exported, imported, and in transit (by the customs lines) for 1873 was as follows:

Imports,	4,257,300,000	marks.
Exports,	2,489,000,000	"
In transit,	1,233,000,000	"

The merchant navy comprised, in 1873, 4748 vessels, including 253 steamers, with a total of 1,201,358 tonnage.

The railways measured, in 1871, about 13,310 English miles; but these figures represent the length, not of the lines within the limits of the German Empire, but of those which are under German administration, though extending some way into neighboring States.

The various telegraphic lines of the empire (excepting those of Bavaria and Wurtemburg) are now under a central administration, and, in 1874, the whole measured 42,571 kilometres; length of wires, 149,410 kilometres · number of messages, 13,422,-511; number of offices, 4992.

The post office forwarded in 1874:

Private letters,	521,900,000
Postal cards,	47,900,000
Official letters,	37,700,000
Parcels, etc.,	89,700,000
	697,200,000
Newspapers,	349,600,000
Number of offices,	7,900

Education is more generally diffused in Germany than in any other part of Europe, and is cultivated with an earnest and systematic devotion not met with, to an equal extent, among other nations. The attendance of children at school, for at

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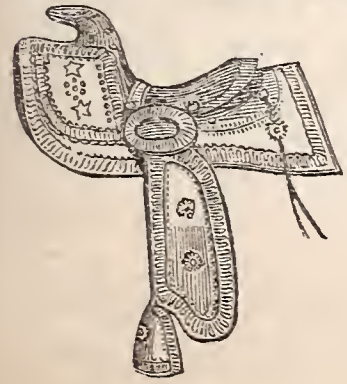

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least four or five years, is made compulsory in nearly all the German States, and hence the proportion of persons who cannot read and write is exceedingly small in Germany.

The elementary schools are 60,000 in number, and are attended by 6,000,000 pupils between the ages of six and fourteen. Of the middle schools, including 330 gymnasia and 214 pro-gymnasia and Latin schools, there were in 1873 over 1000, attended by 177,379 pupils. There are 21 universities, with (in 1873) 1620 instructors and 17,858 students. Of polytechnic schools there are ten, with 360 instructors and 4500 students. Besides these there are numerous special schools of technology, agriculture, commerce, mining, metallurgy, military science, navigation, trades, etc. The German academies of art and sciences and conservatories of music enjoy a world-wide reputation. Public libraries—of which there are more than one hundred and fifty—museums, botanical gardens, art collections, and picture galleries are to be met with in most of the capitals and many of the country towns.

Commission from the GERMAN EMPIRE to the International Exhibition:

DR. JACOBI, Royal Prussian Actual Privy Superior Government Counsellor and Ministerial Director, President.
DR. STUVE, Royal Prussian Privy Government Counsellor and Counsellor in the Ministry of Commerce.
DR. WEDDING, Royal Prussian Counsellor of Mines.
MR. REITHER, Royal Bavarian Counsellor of Legation.
MR. VON NOSTITZ WALLWITZ, Royal Saxon Envoy Extraordinary and Minister Plenipotentiary.
BARON VON SPITZEMBERG, Royal Wurtemberg Envoy Extraordinary and Minister Plenipotentiary.
DR. NEIDHARDT, Grand Ducal Hessian Ministerial Counsellor.
MR. KAUFMANN, Royal Prussian Counsellor of Commerce.
DR. KRUGER, Hanseatic Minister, Resident.
MR. VON HOLLOBEN, Royal Prussian Superior Tribunal Counsellor.
MR. NIEBERDING, Counsellor in the Office of the Chancellor of the Empire.
BARON VON ZEDLITZ, Royal Prussian Provincial Counsellor.

Resident Commissioners.

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GERMANY.

(South of Nave, Columns 28 to 38.)

Mineral and Metallurgical Products, Mining Engineering.

Minerals, Ores, Stone, Mining Products.

STASSFURT COLLECTIVE EXHIBIT.—ROCK SALT, POTASH, FERTILIZING SALTS, AND DRAWINGS. 100

1 Royal Inspection of Mines, Stassfurt.

2 Chemical Factory, formerly Vorster & Grünberg, Stassfurt.

3 Chemical Factory, Leopoldshall.

4 Chemical Factory of Nette, Faulwasser, & Co., Leopoldshall.

5 Zimmer & Co., Stassfurt.

6 Lindeman & Co., G. Stassfurt.

7 Douglass, B. W. B., Westeregeln.

COLLECTIVE EXHIBIT OF PRODUCTIONS OF LEAD MINES AND FURNACES, ACCOMPANIED BY DRAWINGS. 100

8 Royal Prussian Furnaces, Upper Hartz; Royal Prussian and (Ducal) Brunswickian Furnaces, Lower Hartz, at Clausthal and Oker.

9 Royal Prussian Furnace, Friedrichshütte.

10 Joint Stock Association for Mining and Lead and Zinc Manufacturers, Stolberg, near Aix-la-Chapelle.

11 Rhenish-Nassau Co., Stolberg, near Aix-la-Chapelle.

---

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AUSTRIA.—STATISTICAL PREFACE.

THE Austrian Empire forms, on the whole, a compact territory with a circumference of about 5349 miles. It is included between 42° to 51° north latitude, and between 8° 20′ to 26° 20′ east longitude. The body of the empire lies in the interior of the European continent, though, by means of the southern projection of Dalmatia, it has about 1200 miles of sea-coast on the Adriatic. With the rest of its circumference, it borders on the States of the Church, Modena, Parma, Italy, Switzerland, Bavaria, Saxony, Prussia, Russia, Moldavia, Wallachia, Servia, Turkey, and Montenegro. Its present provinces embrace an area of 241,123 square miles, and a population which, in 1869, amounted to 35,904,435.

The following table gives the area, number of civil inhabitants, and total population, civil and military, of the various provinces of the empire—distinguishing its two great political divisions, the German monarchy, or Cisleithan Austria, and the Hungarian kingdom, or Transleithan Austria, together with the so-called military frontier, placed under the administration of the ministry of war for the whole empire—according to the official returns for 1869:

PROVINCES.	AREA IN ENGLISH SQ. MILES.	CIVIL POPULATION.	TOTAL POPULATION.
GERMAN MONARCHY.			
Lower Austria,	7,658	1,954,251	1,990,708
Upper Austria,	4,634	731,579	736,557
Salzburg,	2,763	151,410	153,159
Styria,	8,674	1,131,309	1,137,990
Carinthia,	4,007	336,400	337,694
Carniola,	3,858	463,273	446,334
Coast Land,	3,085	582,079	600,525
Tyrol and Vorarlberg,	11,321	878,907	885,789
Bohemia,	20,763	5,106,069	5,140,544
Moravia,	8,579	1,997,897	2,017,274
Silesia,	1,988	511,581	513,352
Galicia,	30,320	5,418,016	5,444,683
Bukowena,	4,037	511,964	513,404
Dalmatia,	4,942	442,796	456,961
Total German Monarchy,	116,634	20,217,531	20,934,980
KINGDOM OF HUNGARY.			
Hungary,	82,867	11,117,623	11,118,502
Croatia and Slavonia,	7,445	1,160,085	1,164,806
Transylvania,	21,222	2,101,727	2,115,024
Military Frontier,	12,956	1,037,892	1,041,123
Total Hungary,	124,490	15,417,327	15,509,455
Total Austro-Hungary,	241,124	35,634,858	35,904,435

Three-fourths of Austria is mountainous or hilly, being traversed by three great mountain chains—the Alps, Carpathians, and Sudetes, whose chief ridges are of primitive rock. The Alps are accompanied, north and south, by parallel ranges of calcareous mountains, covering whole provinces with their ramifications. The Carpathians are lapped on their northern side by sandstone formations; mountains of the

same character also occupy Transylvania. Springing from the northwest bend of the Carpathians, the Sudetes run through the northeast of Moravia and Bohemia, in which last the range is known as the Riesen gebirge, or Giant mountains. Continuous with this range, and beginning on the left bank of the Elbe, are the Erzgebirge, or Ore mountains, on the confines of Saxony; and veering round to nearly southeast, the range is further prolonged in the Bohemian Forest mountains, between Bohemia and Bavaria. The chief plains of the Austrian empire are: the great plains of Hungary (the smaller of these is in the west, between the offsets of the Alps and Carpathians, and is about 4200 square miles in extent; the other, which is in the east, and traversed by the Danube and the Theiss, has an area of 21,000 square miles), and the plains of Galicia.

From the south point of Dalmatia to the boundary of Italy, Austria has a sea-line of about 1000 miles, not counting the coasts of the numerous islands, the largest of which is Veglia, 23 miles by 12. The chief lakes are: the Platten See, and the Neusiedler See, both in Hungary. The first is navigable by steamers, and both are rich in fish, and have fruitful vineyards around them. The Alps and Carpathians inclose numerous mountain lakes, which are surrounded with wood and rock, and all the other attributes of picturesque scenery. The Long lake in the Tatra mountains lies at an elevation of 6000 feet. The most remarkable of all is the Zirknitz lake, in Illyria. There are extensive swamps or morasses in Hungary. One connected with the Neusiedler See covers some 80 square miles. A good deal has been done in the way of reclaiming lands by draining morasses.

The leading rivers that have navigable tributaries are: the Danube, which has a course of 849 miles within the Austrian dominions, the Vistula, the Elbe, and the Dniester. The Rhine bounds Austria for about fourteen miles above Lake Constance.

The climate of Austria is on the whole very favorable; but from the extent and diversity of surface, it presents great varieties. In the warmest southern region, between 42° to 46° latitude, rice, olives, oranges, and lemons ripen in the better localities; and wine and maize are produced everywhere. In the middle temperate region from 46° to 49°, which has the greatest extent and diversity of surface, the vine and maize still thrive in perfection. In the northern region, beyond 49°, except in favored spots, neither the vine nor maize succeeds; but grain, fruit, flax, and hemp, thrive excellently. The mean temperature of the year is, at Trieste, 58° F.; at Vienna, 51°; at Lemberg, in Galicia, 44°.

The raw products of Austria are abundant and various; and in this respect it is one of the most favored countries in Europe. Its mineral wealth is not surpassed in any European country; it is only lately that Russia has exceeded it in the production of gold and silver. Mining has been a favorite pursuit in Austria for centuries, and has been encouraged and promoted by the government. Bohemia, Hungary, Styria, Carinthia, Salzburg, and Tyrol, take the first place in respect of mineral produce. Except platina, none of the useful metals is wanting. The mines are partly State property, and partly owned by private individuals. Gold is found chiefly in Hungary and Transylvania, and in smaller quantity in Salzburg and Tyrol. The same countries, along with Bohemia, yield silver. The discovery of quicksilver at Idria first brought this branch of mining industry into importance. This metal is now also found in Hungary, Transylvania, Styria, and Carinthia. Copper is found in many districts—tin, in Bohemia alone. Zinc is got chiefly in Cracow and Carinthia. The most productive lead mines are in Carinthia. Iron is found in almost every province of the monarchy, though Styria, Carinthia, and Carniola are chief seats. The production, though great, is not yet equal to the consumption. Antimony is confined to Hungary; arsenic is found in Salzburg and Bohemia; cobalt in Hungary, Styria, and Bohemia; sulphur in Galicia, Bohemia, Hungary, Venice, Salzburg, etc., though not enough to supply home consumption. Graphite is found abundantly in Bohemia, Moravia, Carinthia, etc.

The useful earths and building-stones are to be had in great profusion; all sorts of clay up to the finest porcelain earth (in Moravia, Bohemia, Hungary, Venice), and likewise marble, gypsum, chalk, etc. Of precious and semi-precious stones are the Hungarian opal, which passes in commerce as oriental, Bohemian garnets—the finest in Europe—cornelians, agates, beryl, amethyst, jasper, ruby, sapphire, topaz, etc.

The following table shows the principal metals and minerals produced in Austria in 1867, and their average value in florins at the place of production:

	WEIGHT.	VALUE IN FLORINS.
Gold (Austrian pound), ...	3,562	2,406,041
Silver "	81,378	3,655,643
Quicksilver (Austrian hundredweight), ...	5,944	723,958
Tin " "	591	33,812
Zinc " "	40,296	495,956
Copper " "	47,930	2,377,840
Lead and litharge " "	136,668	1,770,884
Iron, raw and cast " "	5,705,761	16,709,039
Graphite " "	279,355	271,123
Mineral coal " "	108,488,390	17,322,283

Austria is peculiarly rich in salt. Rocksalt exists in immense beds on both sides of the Carpathians, chiefly at Wieliczka and Bochnia, in Galicia, and in the country of Marmaros in Hungary, and in Transylvania. The annual produce of rock-salt is greatly above three million hundredweight. Salt is also made at State salt-works by evaporating the water of salt-springs. The chief works are those at Hallstadt, Ischl, Hallein, and Hall in Tryol. From two to three millions hundredweight are thus produced annually. A considerable quantity is also made from sea-water on the coast of the Adriatic. Of other salts, alum, sulphate of iron, and sulphate of copper are the chief. Austria has abundance of mineral springs, frequented for their salubrity; 1600 are enumerated, some of them of European reputation, as the sulphurous baths of Baden, in lower Austria, the saline waters of Karlsbad, Marienbad, and Ofen, etc.

The vegetable productions, as might be expected from the vast diversity in the soil and position of the different provinces, are extremely various. Although three-fourths of the surface is mountainous, more than five-sixths is productive, being used either for tillage, meadows, pasture, or forest. Grain of all kinds is cultivated most abundantly in Hungary and the districts south of it on the Danube, in Bohemia, Moravia, Silesia, and Galicia. Agriculture is not yet far advanced; the prevailing system is still what is called the three-field system, introduced into Germany by Charlemagne, in which a crop of winter wheat is followed by one of summer grain, and that by fallow.

In Hungary, the Magyar adheres to his primitive husbandry; the German and Slave are adopting improved methods. Rice is cultivated in the Banat, but not enough for the consumption. Potatoes are raised everywhere; and in elevated districts, are often the sole subsistence of the inhabitants. Horticulture is carried to great perfection; and the orchards of Bohemia, Austria proper, Tyrol, and many parts of Hungary, produce a profusion of fruit. Great quantities of cider are made in upper Austria and Carinthia, and of plum brandy in Slavonia. In Dalmatia, oranges and lemons are produced, but not sufficient for the requirements of the country; twice as much olive oil is imported as is raised in the monarchy.

In the production of wine, Austria is second only to France. With the exception of Galicia, Silesia, and upper Austria, the vine is cultivated in all the provinces; but Hungary stands first, yielding not only the finest quality of wine, but four-fifths the amount of the whole produce of the empire. The average produce of the whole empire is estimated at about 680 millions of gallons.

Of plants used in manufactures and commerce, the first place is held by flax and

hemp. Flax is cultivated almost universally; white hemp in Galicia, Moravia, Hungary, etc. Tobacco is raised in great quantities, especially in Hungary, which also is first in the cultivation of rapeseed. Bohemia raises hops of the first quality, which are partly exported, though other provinces import from abroad. The indigo plant has lately been successfully acclimatized in Dalmatia. More than a third of the productive surface is covered with wood (75,000 square miles), which, besides timber, yields a number of secondary products, as tar, potash, charcoal, bark, cork, etc.

As to animals, bears are found in the Carpathians, Alps, and Dalmatia; wolves, jackals, and lynxes in these same districts, and also in the Banat, Croatia, Slavonia, and the military frontiers. The marmot, otter, and beaver are also found in Dalmatia. Game has of late sensibly diminished. The wild goat lives in the highest, the chamois and white Alpine hare in the middle regions of the Alps and Carpathians. More productive than the chase are the fisheries of the Danube, Theiss, and numerous streams, lakes, and ponds. The chief sea-fishing is in Dalmatia. Leeches, procured chiefly in Hungary and Moravia, form an article of considerable trade. For foreign commerce, the most important branch of rural industry is the rearing of silk.

Austria produces about a quarter a million of silk cocoons annually. The silk trade is very extensive on the Tyrol—the yearly supply of cocoons in that country being about 32,000.

In 1851, the number of horses in the monarchy was stated at 3,229,884 (not including 75,000 belonging to the army); cattle, 10,410,484; sheep, 16,801,545; goats, 2,275,900; and swine, 7,401,300. Nearly three-fourths of the population are engaged in husbandry, so that Austria is decidedly an agricultural State, though its capabilities in this respect have by no means been fully developed.

The annual value of its manufactures—not including small trades—is estimated at 1000 to 1200 millions of florins, while that of its husbandry may reach 3000 millions. Bohemia takes the lead in this industry; then follow Austria proper, Moravia and Silesia, Hungary. Vienna is the chief seat of manufacture for articles of luxury; Moravia, Silesia, and Bohemia for linen, woolen, and glass wares; Styria and Carinthia for iron and steel wares. The chief manufactured articles of export are silken and woolen; the only others of consequence are linen, twist, glasswares, and cotton goods. The yearly value of manufactured iron is about fifty-four millions of florins. The glasswares of Bohemia are of special excellence. The hemp and flax industry is one of the oldest and still most important.

No branch of industry has risen more rapidly than that of cotton. The annual value of the silk industry is estimated at about sixty millions of florins. The manufacture of tobacco is a State monopoly, and produced a revenue in 1873 of 58,126,000 florins. The salt monopoly secured 18,720,000 florins.

The imports for the year 1874 were 565,600,000 florins; the exports were 452,200,000 florins. This is exclusive of Dalmatia—not within the imperial line of customs. The figures for Dalmatia were, during the same year: 9,600,000 florins imports, and 6,600,000 florins exports.

The merchant navy, at the beginning of 1875, comprised 7203 vessels, with a tonnage of 332,005, and an equipment of 27,381 seamen. Of great importance for the commerce of the empire is the Austrian Lloyds. This company owned, on the 1st of January, 1874, a fleet of seventy-six steamers, of 15,800 horse-power.

Since the year 1867 Austria has been a twofold empire, consisting of a German or "Cisleithan" monarchy—Austria proper; and a Magyar or Transleithan kingdom —Hungary. Each of the two countries has its own laws, parliament, ministers, and government; and the formal tie between them is a body known as the Delegations. These form a parliament of 120 members; one-half is chosen by the legislature of Austria, and the other by that of Hungary, the upper house of each returning twenty, the lower house forty delegates. The delegations have jurisdiction over all

matters affecting the common interests of the two countries, especially foreign affairs, war, and finance. The acts of the delegations require to be confirmed by the representative assemblies of their respective countries.

The administration of Austria proper is divided among nine ministries—Foreign Affairs, Police, Public Education, Agriculture and Public Works, Finance, Interior, War and Navy, Commerce, and Justice. The Reichsrath consists of an upper and a lower house. The upper house is constituted by princes, nobles, archbishops, bishops, and life members nominated by the emperor. To give validity to bills passed by the Reichsrath, the consent of both chambers is required, as well as the sanction of the emperor.

The executive of Hungary is carried on in the name of the king by a responsible ministry.

The budget for 1875 gives, for Austria proper,

Total expenditures, ...	382,231,049	
" receipts, ...	373,089,899	
Deficit, ...	9,141,150	florins.
For Hungary—Total expenditures, ...	233,804,075	
" receipts, ...	212,138,518	
Deficit, ...	21,665,557	florins.

The public debt of Austria, on the 1st of January, 1875, was 2,649,484,475 florins; that of Hungary, January 1st, 1873, was 488,717,380 florins.

According to official returns, Austria possessed, in 1875, a standing army numbering 284,435 men on the peace footing, and 785,649 on the war footing.

The naval forces consisted of sixty-nine vessels, of a tonnage of 115,380, carrying 263 heavy and 87 light guns. Of this fleet, 47 vessels were steamers, of 100,260 tons burthen, carrying 263 heavy and 87 light guns.

The length of railways, at the close of 1873, was

In Austria, ...	9,823	kilometres.
" Hungary, ...	6,415	"
Total, ...	16,238	"

The work of the post office in Austria-Hungary for 1874 was as follows:

Letters, ...	253,909,000
Postal cards, ...	28,741,000
Parcels, ...	31,959,000
Newspapers, ...	82,085,000
Number of post offices, ...	6,296

The statistics of telegraphs for the year 1874 are as follows:

Length of lines (Austria-Hungary), ...	45,441	kilometres.
" " wires " "	129,171	"
Number of offices, ...	2,923	"
" of dispatches, ...	5,797,492	"

Education, since 1849, is under the care of a Minister of Public Worship and Instruction. In the major part of German Austria the law enforces the cumpulsory attendance in the "Volksschulen," or National Schools, of all children between the ages of six and twelve, and parents are liable to punishment for neglect. It is rarely, however, that cases occur in which penalties for non-attendance at school have to be enforced. The cost of public education mainly falls on the communes, but of late

years the State come forward to assist in the establishment of schools for primary education.

There are seven universities in the empire. Four of these, the high schools at Vienna, Prague, Graz, and Innsbruck, are called German universities, and were attended as follows, in 1872:

	PROFESSORS AND TEACHERS.	STUDENTS.
Vienna,	200	3881
Prague,	97	1709
Graz,	70	926
Innsbruck,	58	612

Of the other universities, Pesth, the high school of Hungary, had 2500 students at the end of 1873, and Cracow and Lemberg, the high schools for Galicia and the other Slavonian provinces, had, at the same date, together, 1900 students.

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6 **Genthe, Adolph, Lichtenau, near Gföhl, Lower Austria.**—Graphite. 105

7 **Legrady, Joseph, Vienna.**—Glaziers' diamonds and artificial steel glass cutters. 106

8 **Nedwied & Son, Schlan, Bohemia.**—Red chalk, red-lead pencils. 107

9 **Saxlehner, Andreas, Budapest.**—Hunyadi János mineral water. 107

10 **Mineral Water Direction, Pullna,** near Brüx, Bohemia.—Mineral water. 107

11 **Loser Bros., Budapest.**—Genuine mineral water from the Ofen-Rakoczy spring. 107

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12 **Industry Association in Krain,** Laibach.—Iron and steel mountain and mining works. Ferro-manganese and spiegel iron. 111

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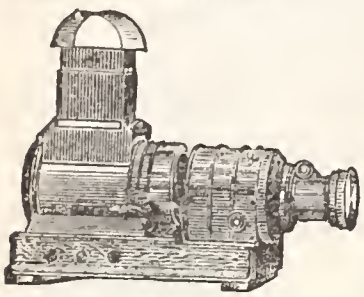

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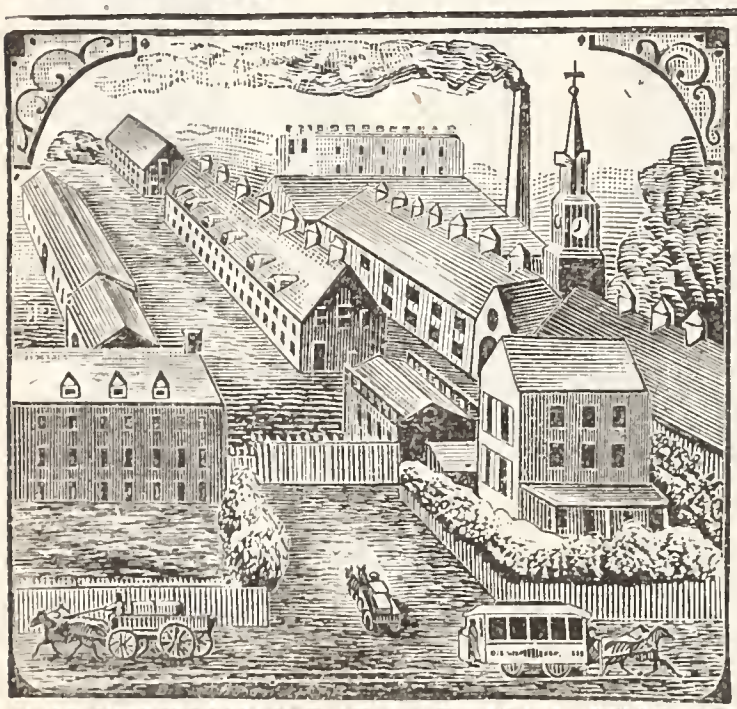

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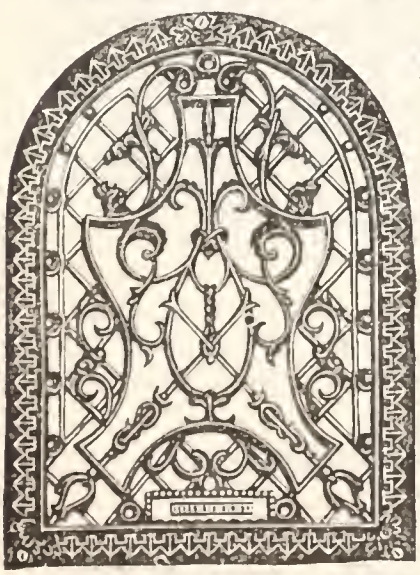

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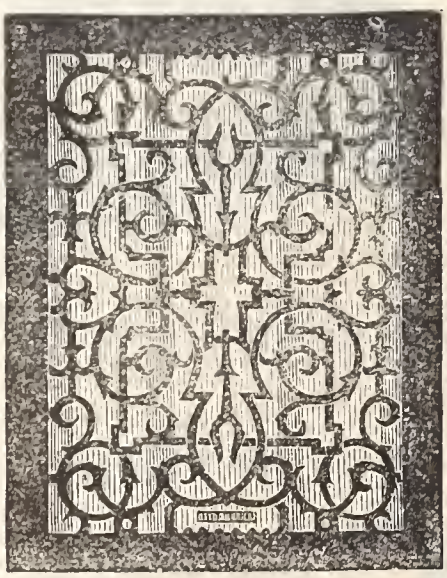

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SWITZERLAND.—STATISTICAL PREFACE.

SWITZERLAND is an inland country of Europe, situated between 45° 48′ and 47° 49′ north latitude, and 5° 55′ and 10° 30′ east longitude. Its greatest length from east to west is 180 miles, and its greatest width from north to south, 130 miles.

The following table gives the area and population of each of the 22 cantons, according to the census returns of 1870:

	ENGLISH SQUARE MILES.	POPULATION.
Graubunden,	2,968	91,782
Bern,	2,561.5	506,465
Wallis (Valais),	1,661.6	96,887
Vaud (Waadt),	1,181.9	231,700
Ticino (Tessin),	1,034.7	119,619
St. Gallen,	747.7	191,015
Zurich,	685.3	284,786
Luzern,	587.4	132,338
Fribourg (Freeburg),	563.9	110,832
Aargau,	502.4	198,873
Uri,	420.8	16,107
Schwyz,	338.3	47,705
Neuchatel (Neuenburg),	280.2	97,284
Glarus,	279.8	35,150
Thurgau,	268.3	93,300
Unterwalden,	262.8	26,116
Solothurn,	254.6	74,713
Basle,	184.6	101,887
Appenzell,	152.8	60,635
Schaffhausen,	119.7	37,721
Geneve (Genf),	91.3	93,239
Zug,	85.4	20,993
Total,	15,233.0	2,669,147

Switzerland is the most mountainous country of Europe. Its principal chains are the Alps and the Jura. The former run from east to west along its southern or Italian frontier. Their ramifications fill more than one-half the country, and terminate along a line which may be traced from Vevey, on the lake of Geneva, to Mount Moleson and Mount Napf, across Lake Zug, to the southern shores of the lakes of Zurich and Wallenstadt, and Sargans on the Rhine. The mean elevation of the highest chain is from 8000 to 9000 feet. The Jura run northeast from the western corner of Switzerland. They consist of a series of parallel ridges inclosing long and narrow valleys, and their mean elevation does not exceed 4000 feet. In the angle formed between them and the Alps lies the plain of Switzerland, a table-land 100 miles in length, and from 20 to 30 miles in width, with a mean elevation of about 1400 feet above the sea. It is not absolutely level, but covered with elevations which seem very unimportant when contrasted with the huge masses of the Alps and Jura. The communication between the plain of Switzerland and the German valleys of the Danube and Rhine is not continuous. The plain terminates in the east in a third hilly tract, the Thur hill country, which lies between the lakes of Zurich and Constance, and, to some extent, forms a barrier between the plain of Switzerland and Germany. The Jura, the plain, and the hill country, are the three great divisions of northern Switzerland. The divisions in the Alpine region are more strongly marked

in nature. They isolate and inclose (1) the valleys drained by the Rhone which connect Switzerland with southern France; (2) Ticino, drained by streams which descend to the Po, and bring this section into communication with Italy; (3) the Grisons, the most sequestered valleys of Switzerland, drained by the tributaries of the Rhine and Danube, and shut out by mountains from the lower basins of these rivers; (4) Bernese Oberland, which slopes towards the western extremity of the Swiss plain; (5) the district of the Forest Cantons, Schwyz, Uri, and Unterwalden, surrounding the Lake of Lucerne.

In Switzerland the climate chiefly varies with the elevation above the sea level. At a height exceeding 9500 feet the mountains are covered with perpetual snow, which descends along the glaciers to a much lower level, and thus covers the elevated part of the country with a vast sea of ice. Below the level of perpetual snow the surface of Switzerland has been divided into a series of belts, characterized by different climates and productions. The highest of these, lying between the snow and the level of 6900 feet, has been called the Upper Alpine region. In it the glaciers fill the valleys, but plants clothe the scanty soil of the ridges. The second or Lower Alpine belt descends to 4800 feet, and is a country of pastures in which shrubs, but no trees, are seen. In the third belt, which descends to 4350 feet, meadows still abound, but forests of firs and maples, in many parts, replace them. The fourth belt sinks to 3000 feet. Here forests still abound, the beech being the prevailing tree; the meadows are excellent, and rye and barley are successfully cultivated. The fifth belt descends to 1800 feet. In it the oak and walnut are the characteristic forest trees. Spelt and the best wheat are cultivated. The last belt sinks to 750 feet. In it the chestnut is the characteristic tree; the mulberry and vine are extensively cultivated, and wheat is the grain chiefly grown. This belt includes the greater part of the Swiss plain, and sinks to its lowest level in the valley of the Rhine, between Constance and Basle, and the banks of Lake Zurich and Lago Maggiore. In the last district the vegetation is that of northern Italy. The most populous part of Switzerland lies between 1250 and 2150 feet. The temperature of this region is fairly represented by that of Zurich, which averages, for the year, 47.95°.

The German language is spoken by the majority of the inhabitants in sixteen cantons, the French in four, and the Italian in two. It is reported in the census returns of 1870 that 384,561 families speak German, 134,183 French, and 30,293 Italian. According to the same returns there were but five towns in Switzerland with more than 20,000 inhabitants, namely, Geneva, seat of the watch and jewelry industry, with 46,783; Basle, centre of the silk industry, with 44,834; Bern, political capital, with 36,001; Lausanne, with 26,520; and Zurich, with 21,199 inhabitants. The soil is pretty equally divided among the population, it being estimated that four-fifths of the inhabitants are land owners. Of every 100 square miles of land 20 are pasture, 17 forest, 11 arable, 20 meadow, 1 vineyard, and 30 uncultivated, or occupied by lakes, rivers, and mountains.

According to the census of 1870 there are 2,095,447 individuals supported, either wholly or in part, by agriculture. At the same date, the manufactories employed 216,468 persons, the handicrafts 241,425. In the canton of Basle the manufacture of silk ribbons employs 6000 persons, with a total annual production valued at $7,000,000. In the canton of Zurich silk stuffs, to the value of about $8,000,000, are made by 12,000 operatives. The manufacture of watches and jewelry in the cantons of Neuchatel, Geneva, Vaud, Bern, and Solothurn, employ 36,000 workmen, who produce annually 500,000 watches—three-sevenths gold, four-sevenths silver—valued at $9,000,000. In the cantons of St. Gall and Appenzell, 6000 workers make $2,000,000 worth of embroidery annually. The printing and dyeing factories of Glarus turn out goods to the value of $30,000 per annum. The manufacture of cotton goods occupies upwards of 1,000,000 spindles, 4000 looms, and 20,000 operatives, besides 38,000 hand-loom weavers.

The Federal custom house returns classify all imports and exports under three chief headings, namely, live stock, *ad valorum* goods, and goods taxed per quintal. No returns are published of the value of imports or exports: only the quantities are given. The following table shows the imports and exports during the year 1871:

IMPORTS.

Live stock,	256,851 head.
Agricultural instruments, carts, and railway carriages for travelers and merchandise, *ad valorum*,	1,043,991 francs.
Goods taxed per quintal, including loads reduced to quintals,	25,450,359 quintals.

EXPORTS.

Live stock,	127,490 head.
Wood and coal, *ad valorum*,	5,351,941 francs.
Goods, per load and quintal,	4,086,646 quintals.

The present constitution vests the supreme legislative and executive authority in a parliament of two chambers, a Standerath, or State Council, and a Nationalrath, or National Council. The first is composed of 44 members, chosen by the 22 cantons—2 for each canton. The Nationalrath consists of 135 representatives, chosen by popular vote, at the rate of one deputy for every 20,000 souls. A general election for representatives takes place every three years. Both chambers united are called the Bundesversammlung, or Federal Assembly, and as such represent the supreme government of the republic. The chief executive authority is deputed to a Bundesrath, or Federal Council, consisting of seven members elected for three years by the Federal Assembly. The president and vice-president of the Federal Council are the first magistrates of the republic. Both are elected by the Federal Assembly for the term of one year, and are not re-eligible until after the expiration of another year. Independent of the Federal Assembly, though issuing from the same, is the Bundes-Gericht, or Federal Tribunal, consisting of eleven members, elected for three years. The Federal Tribunal decides, in the last instance, on all matters in dispute between the various cantons, or between the cantons and the Federal government, and acts in general as a high court of appeal. Each of the Swiss cantons and demi-cantons has its local government, different in organization in most instances, but all based on the absolute sovereignty of the people.

In the budget estimates for the year 1875 the total revenue is set down at 39,516,000 francs,* and total expenditure at 39,266,000 francs. The public debt of the republic amounted, at the commencement of 1875, to 30,635,552 francs, as a set-off against which there was a so-called Federal fortune, or property belonging to the State, valued at 31,783,303 francs.

The fundamental laws of the republic forbid the maintenance of a standing army within the limits of the confederation. The troops are divided into three classes: 1, the Bundes-Auszug, or Federal army, consisting of all men able to bear arms from the age of 20 to 30; 2, the army of reserve, consisting of all men who have served in the first class, from the age of 31 to 40; 3, the Landwehr, or militia, comprising all men from the 41st to the completed 44th year. The strength of the armed forces of Switzerland, at the end of 1874, was as follows:

Staff,	841
Bundes-auszug,	84,369
Reserve,	50,069
Landwehr,	65,981
Total,	201,260

* One franc = 19.3 cts. gold.

From official returns it appears that the railways open for public traffic in Switzerland had, at the end of 1874, a total length of 1024 English miles.

The post office of Switzerland forwarded, during the year 1874, 63,252,884 letters; 19,925,200 packets, and 45,651,344 newspapers.

At the end of September, 1875, there were 3736 miles of telegraph lines and 9538 miles of wires. The number of messages sent, in the year 1874, was 2,625,104; number of offices, 815. The entire telegraph system belongs to the State.

In no country is elementary instruction more widely diffused. Parents are compelled to send their children to school from five to eight, but not above that age. There are universities on the German model at Basle, Bern, and Zurich, and academies on the French plan at Geneva and Lausanne. The number of clubs for scientific, literary, musical, and social purposes, is remarkable. There are few pursuits to which any class of men can devote themselves which are not represented in Switzerland by societies.

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A. HIRSCH, Director of the Observatory.
SAUR-USTERI, Engineer.
SALVISBERG, Architect.
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JOSEPH BEELER, of Wusen, Secretary.

SWITZERLAND.

(North of Nave, Columns 52 to 55.)

Minerals, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

1 **Neuchatel Asphalte Co., Limited,** Travers, Ct. Neuchâtel.—Natural and mastic asphalt. 101

2 **Zbinden, F., Lausanne, Ct. Vaud.**—Anti-oxyd. 106

(The minerals illustrating the geological formations traversed by the St. Gothard tunnel are classified in this catalogue, together with the other exhibits of the St. Gothard Railroad Co., under Dept. III, Class 332.)

Metallurgical Products.

3 **Bürgin Bros., Schaffhausen.**—Phosphate of bronze, different compositions, with strength and fracture tests. 114

BELGIUM.—STATISTICAL PREFACE.

BELGIUM lies between latitude 49° 27′ and 51° 30′ north, and between longitude 2° 33′ and 6° 5′ east. It is bounded on the north by Holland; on the east by Dutch Limbourg, Luxembourg, and Rhenish Prussia; on the south and southwest by France; and on the northwest by the North Sea. Its greatest length, from northwest to southeast, is 173 English miles; and its greatest breadth, from north to south, 112 English miles. The whole area is 11,313 square miles. The following table gives a list of the provinces in Belgium, with the area, population, and chief town of each:

PROVINCES.	AREA IN SQ. MILES.	POPULATION (1870).	CHIEF CITIES.
Antwerp,	1,094	492,482	Antwerp.
West Flanders,	1,243	668,976	Bruges.
East Flanders,	1,154	837,726	Ghent.
Hainault,	1,430	896,285	Mons.
Liege,	1,111	592,177	Liege.
Brabant,	1,260	879,814	Brussels.
Limbourg,	929	200,336	Hasselt.
Luxembourg,	1,695	205,784	Arlon.
Namur,	1,397	313,525	Namur.
Total,	11,313	5,087,105	

Belgium is the most densely populated country in Europe, the population being about 404 to the square mile; and in the particular provinces of East Flanders, Brabant, Hainault, and West Flanders, respectively, not less than 675,594,537, and 502 to the square mile. The mural population bears to that of the towns a proportion of about 3 to 1. About 58 per cent. of the inhabitants are Flemish, the rest Walloon and French, with 39,000 Germans in Luxembourg. Belgium is, on the whole, a level and even low-lying country; diversified, however, by hilly districts. In the southeast, a western branch of the Ardennes highlands makes its appearance, separating the basin of the Maas from that of the Moselle, but attains only the moderate elevation of 2000 feet. In Flanders the land becomes so low that in parts where the natural protection afforded by the downs is deficient, dikes, etc., have been raised to check the encroachments of the sea. In the northeast part of Antwerp, a naturally unfertile district named the Campine, and composed of marshes and barren heaths, extends in a line parallel with the coast. The once impassable morasses of the *Morini* and the *Menapii*, which stayed the progress of Cæsar's legions, are now drained, and converted into fertile fields, surrounded by dense plantations, which make the land at a distance look like a vast green forest—though, when more closely regarded, we see only numerous dwellings interspersed among fields, canals, and meadows.

The abundant water-system of Belgium is chiefly supplied by the rivers Scheldt and Maas, both of which rise in France, and have their embouchures in Holland. At Antwerp, the Scheldt, which, like the Maas, is navigable all through Belgium, is 32 feet deep, and about 480 yards wide. Its tributaries are the Lys, Dender, and Rupel. The Maas, or Meuse, receives in its course the waters of the Sambre, the Ourthe, and the Roer. These natural hydrographical advantages are increased by a system of canals which unite Brussels and Louvain with the Rupel, Brussels with Charleroi, Mons with Conde, Ostend with Bruges and Ghent, and this last place with Terneuse. The climate of Belgium, in the plains near the sea, is cool, humid, and somewhat unhealthy; but in the higher southeast districts, hot summers alternate with very cold winters. April and November are always rainy months. The geological formations

of Belgium are closely associated with France and Britain. The greater portion of the country is covered with tertiary deposits. A line drawn across the course of the Scheldt, by Mechlin, along the Demer and Maas, will have on its northern and northwestern aspect a tract of tertiary deposits, bounded northwards by the sea. In these tertiary strata the different geological periods are fully represented; but only the second, containing the Pleiocene deposits, is rich in fossils. The secondary deposits occupy an extensive tract in the centre of Belgium, between the Scheldt and the Demer. The most important district, economically, is the southwestern, consisting of palæozoic rocks—Silurian, Devonian, and Carboniferous. These beds have a very complicated structure, from the numerous and extensive flexures and folds they have undergone, and these are often accompanied with great upward shifts, by which beds of many different ages are brought to the same level. Belgium is rich in minerals, which, next to its abundant agriculture, constitute the chief source of its national prosperity. The four provinces in which they are found are Hainault, Namur, Liege, and Luxembourg. They include lead, copper, zinc, calamine, alum, peat, marble, limestone, slate, iron, and coal. Lead is wrought, but only to a small extent, in Liege; copper in Hainault and Liege; manganese in Liege and Namur; black marble at Dinant; slates at Herbemont; and calamine principally at Liege. But these products are insignificant compared to the superabundance of coal—from anthracite to the richest gas coal—and iron.

In the year 1871, the total coal production of Belgium amounted to 13,733,176 tons, of a total value of 153,803,000 francs. Number of hands employed in the coal mines of Belgium, 94,186. The average daily pay of the workmen, in 1871, was 2¾ francs per day; average cost of production, 9½ francs per ton of coal. The Ardennes districts yield a large supply of wood; while the level provinces raise all kinds of grain—wheat, rye, barley, oats, etc., leguminous plants, hemp, flax, colza, tobacco, hops, dye-plants, and chicory. Belgium contains upwards of 7,000,000 acres, of which one-half is arable, rather more than one-fifth in meadow and pasture, the same in woods and forests, and not above 500,000 acres lying waste. Some hundreds of acres are devoted to vineyards, but the wine produced is of an inferior quality. The forests of Ardennes abound in game and other wild animals. Good pasturage is found on the slopes and in the valleys of the hilly districts, and in the rich meadows of the low provinces. Gardening occupies not less than 130,000 acres; indeed, it has been said that the agriculture of Belgium is just gardening on a large scale, so carefully and laboriously is every inch of soil cultivated. The spade is still the principal instrument used. In the Campine, the care of bees is very productive, and the cultivation of the silkworm is encouraged. There are valuable fisheries on the coast, which, in 1871, employed 263 boats, with a tonnage of 8963. Belgium is famous for its horses, and in one year contained 294,537 of these animals, 1,203,891 horned cattle, and 662,508 sheep.

Wool is the object of an immense industry, the woolen manufactures of Verviers and its environs alone employing a population of 50,000 operatives. Flannels, serges, camlets, carpets, flax fabrics, silks, velvets, fine laces, ribbons, hosiery, hats, paper, etc., are extensively and profitably manufactured. The working of metals, as iron, copper, and tin, is very important; the manufacture of cannon, firearms, and locomotive engines being an especial feature of the metallurgical industry of Belgium.

The foreign trade of Belgium is officially divided into "general commerce," including the sum total of all international mercantile intercourse, and "special commerce," comprising such imports as are consumed within and such exports as have been produced in the country. The following table gives the value of both the general and special exports for the year 1873:

General imports,	2,424,800,000 francs.
" exports,	2,164,900,000 "
Special imports,	1,422,700,000 "
" exports,	1,158,600,000 "

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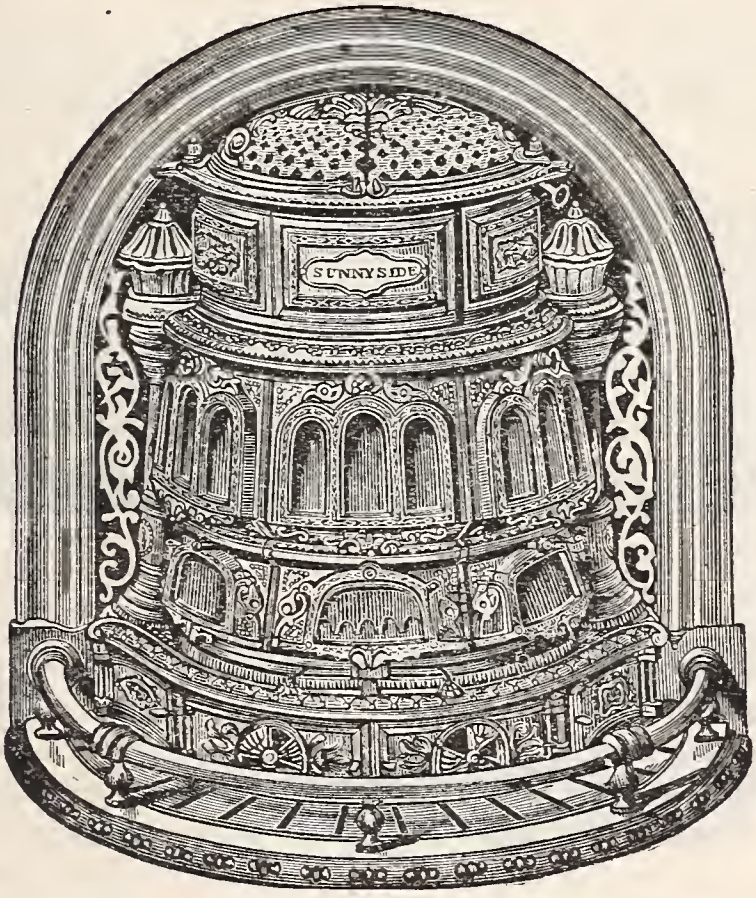

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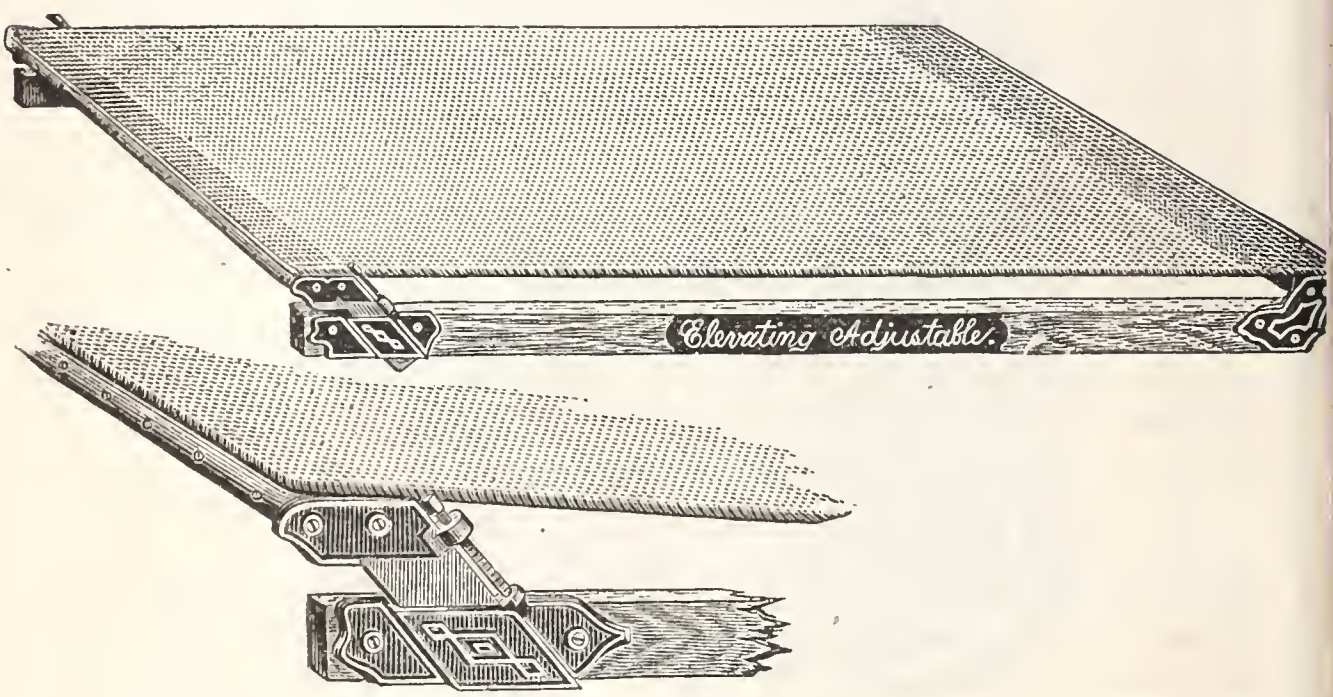

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The statistics of the Belgian merchant navy for 1873, are—

	NO.	TONNAGE.
Sailing vessels,	41	16,434
Steam "	28	30,005
Total,	69	46,439

Belgium is a constitutional, reprcsentative, and hereditary monarchy. The legislative power is vested in the King, the Chamber of Representatives, and the Senate. The Chamber of Representatives is composed of deputies chosen directly by all citizens paying a small amount of direct taxes. The number of deputies is fixed according to the population, and cannot exceed one for every 40,000 inhabitants. The Senate is composed of exactly one-half the number of members composing the other chamber, and are elected by the same citizens who appoint the deputies. The public expenditures of Belgium, for 1875, were 238,281,441 francs; receipts during the same year, 243,032,600 francs. The total public debt, in 1875, was 1,127,040,009 francs. The standing army is formed by conscription, to which every able-bodied man, who has completed his nineteenth year, is liable. Substitution is permitted. The actual number of soldiers under arms, on the 1st of January, 1875, was 103,893.

In Belgium the State is a great railway proprietor, and the State railway is one of the largest sources of national revenue. As each conceded railway lapses gratuitously to the State in 90 years from the period of its construction, the entire system will in time become national property. There were, at the end of 1875, 1953 kilometres of railways owned by the State, and 1479 worked by companies; in all 3432 kilometres. (The kilometre = 1093 yards.)

The work of the post office for 1874, was—

Number of offices,	479
Private letters,	58,036,628
Official "	6,035,861
Newspapers,	58,825,598
Packets (printed matter, etc.),	30,094,027

There were, on the 1st of January, 1875, telegraph lines of a length of 4909 kilometres; length of telegraph wires, 20,512 kilometres; telegraph stations, 574.

Elementary education is not yet generally diffused among the people. The schools are supported by the communes, the provinces, and the State combined. Education is not compulsory. In the budget for the year 1874, the sum voted by the Chamber of Representatives for public education amounted to 9,701,628 francs.

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BELGIUM.

(*North of Nave, Columns 54 to 59.*)

Minerals, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

1 **Bleyberg es Montzen Joint Stock** Co., Montzen, Province of Liége.—Zinc and lead ore. 100

2 **Vincent Sons, Basècles (Hainaut).**—Samples of Basèdles black marble pavements. 102

3 **Ville de Spa Communal Administration.**—Trophy furniture, showing views of the city and environs, plans of mineral water-works, samples of these waters, articles of export, etc. The painting of this furniture was executed by Messrs. Boland, Chas., Bronfort, H., Crehey, senior, G. I., Debrus, Alexandre, Debrus, Alexis, Krins, E., Marcette, Henri, and Reigler, L. 107

Metallurgical Products.

4 **Bonehill Bros., L'Esperance High** Furnace Forge Foundry, Marchienne-au-Pont, near Charleroi.—Ornamental iron. 111

5 **Constant, Emile, Monceau-sur-**Sambre, near Charleroi.—Patterns of ornamental iron spring and web iron. 111

6 **Jowa, Delheid, & Co., Liége.**—Rough cast iron patterns, rolled iron, iron wire, corrugated and galvanized sheet iron, bridge platforms, flooring, etc. 111

7 **Mabille, Valère, Mariemont (Hainaut).**—Manufactured iron, Kind Chaudron shaft-sinking apparatus 111

8 **Paris, Isaac Joseph, Marchiennes,** near Charleroi.—Iron riveted beams for ship-building. 111

9 **Charleroi Iron Manufacturing Joint** Stock Co., Marchienne-au-Pont, near Charleroi.—Iron for building, etc. 111

10 **Providence Forge Joint Stock Co.,** Marchienne-au-Pont, near Charleroi.—Iron for building, iron wheels without welding. 111

11 **Forge and Rolling Mill Joint-stock** Co., Régissa, near Huy.—Polished and unpolished sheet iron by wood and coke. 111

12 **Angleur Steel Manufacturing Co.,** F. de Rossius, Pastor & Co., Renory, near Liége.—Bessemer cast steel products, rails, tires, axles, forge pieces, and rolled bars. 111

13 **Jammapes Forge Foundry and Roll-**ing Mill Co., V. Demerbe & Co., Jammapes (Hainaut).—Broken bar-bended iron, tramway rails, system of tramway rails on cast iron sleepers. 111

14 **Bivort, Raymond, Henri, Arbre,** Province of Namur.—Kettles and copper wire. 112

15 **Bleyberg es Montzen Joint Stock** Co., Montzen, near Verviers.—Prepared zinc and lead ore, potters' ore (pure galena) for glazing, pig lead for rolling mill, white lead and crystals, silver ore, block zinc for rolling, galvanizing, etc 113

NETHERLANDS.—STATISTICAL PREFACE.

THE Kingdom of the Netherlands lies between 50° 43′ and 53° 36′ north latitude and 3° 22′ and 7° 16′ east longitude, is bounded on the north by the North Sea, east by Hanover and the western part of Prussia, south by Belgium, west by the North Sea. Its greatest length, from north to south, is 195 English miles; its greatest breadth from the west, on the North Sea to the extremity of Overyssel, on the east, 110 English miles. It contains 12,637 square miles, including the grand duchy of Luxembourg (which, although possessed of a separate administration, is connected with the kingdom in the person of the sovereign). The entire population, in 1872, was 3,835,111.

The following table gives the population (1872) and area of the provinces, including the reclaimed Haarlem Lake:

	AREA IN SQUARE MILES.	POPULATION.
North Brabant,	1,985	435,262
Gelderland,	1,972	436,029
South Holland,	1,176	700,499
North Holland,	966	591,338
Zeeland,	642	181,332
Utrecht,	531	175,037
Friesland,	1,267	300,257
Overyssel,	1,308	236,681
Groningen,	907	228,883
Drenthe,	1,029	106,713
Limburg,	854	225,352
	12,637	3,637,383
Grand Duchy of Luxembourg,	990	197,528
Total,	13,627	3,835,111

The land is generally low, much of it being under the level of the sea, rivers, and canals, especially in North and South Holland, Zeeland, the southern part of Gelderland, and Friesland. Along the west coast the low lands are protected from the sea by a line of sand-hills, or dunes, and where that natural defence is wanting strong dykes have been constructed to keep back the waters, and are maintained at great expense. The greatest of these dykes are those of the Helder and of West Kapell, on the east coast of Walcheren. Engineers, called the officers of the Waterstaat, take special charge of the dykes and national hydraulic works. A hilly district stretches from Prussia through Drenthe, Overyssel, the Veluwe, or Arnhem district of Gelderland, the eastern part of Utrecht, into the Betuwe or country between the Maas and the Waal. This tract has many pretty spots, is of a light sandy soil, well watered, and when not cultivated, is covered with heath or oak-coppice. The greater portion of the north is very fertile, the low lands and drained lakes, called Polders, being adapted for pasturing cattle, and the light soils for cereals and fruits; but in some districts there are sandy heath-clad plains, extensive peat-lands, and undrained morasses, which industry is rapidly bringing under cultivation.

The islands may be divided into two groups, of which the southern, formed by the mouths of the Schelde and Maas, contains Walcheren, South and North Beveland, Schouwen, Duiveland, Tholen, St. Philipsland, Goeree, Voorne, Putten, Beyerland, Ysselmonde Rozenburg, and the island of Dordrecht. The northern group

contains the islands at the entrance of the Zuyder Zee and along the coast of Groningen and Friesland, as Wieringen, Texel, Vlieland, Terschelling, Ameland, Schiermonnikoog, and Rottum. In the Zuyder Zee are Marken, Urk, and Schokland. The chief rivers are the Rhine, Maas, and Scheldt. Important branches of these are the Waal, Lek, Yssel, Roer, etc.

Water ways are more numerous than in any other European country, the immense tracts of meadow-land and the fertile polders being girdled by large canals, and cut in all directions by smaller ones for drainage and communication. Those of most importance to the national trade are, the North Holland canal, constructed 1819–1825, to connect the port of Amsterdam with the North Sea; the Voorne canal, from the north side of Voorne to Hellevoetsluis, which shortens the outlet from Rotterdam; the South Willemsvaart, through North Brabant, Dutch and Belgian Limburg, from Hertogenbosch to Maastricht, being 71½ English miles in length, and having 24 locks. Besides these, there are numerous important canals, connecting rivers, and cutting the kingdom into a network of water-courses. To improve the entrances to the Maas, the Hock, of Holland, has lately been cut. The new canal through the Y will be nowhere less than 80 yards broad, with sluices nearly 400 feet in length, and a depth of nearly 23 feet. It will reduce the distance from Amsterdam to the sea to about 15 miles, and gives a safe way for large ships.

The climate of the Netherlands is variable, chilly colds often closely succeeding high temperatures, inducing various forms of fever and ague, and requiring peculiar care as to clothing, etc. In summer, the thermometer sometimes rises above 80°, and even to 90° F. in the shade, and a winter of great severity usually occurs every fifth year, when carriages and heavily laden wagons cross the rivers and the Y on the ice, and thousands enjoy the national pastime of skating.

The farms are generally small and well cultivated. The leading agricultural products of Zeeland are wheat and madder; in South Holland, madder, hemp, butter, and cheese; in North Holland, butter and cheese are extensively made, and cattle, sheep, and pigs reared and exported. The horses of Friesland, Zeeland, and Gelderland are of first-rate quality. The exportation of butter from Holland and Friesland, and of Edam, Leyden, Gonda, and Frisian cheese, is quite large. Fruit is abundant, and in several provinces, as Gelderland, Utrecht, and Drenthe, much attention is paid to bees. In Haarlem and neighborhood, tulips and hyacinths are much cultivated, realizing a large annual amount. Wild ducks, snipes, plovers, and hares are plentiful; and there are also conies, partridges, pheasants, and deer—game forming an article of export.

The Netherlands are of recent formation, and consist of an alluvial deposit, chiefly of a deep, rich clayey soil, superimposed on banks of sand, marine shells, and beds of peat and clay. It appears that at some distant period there has been a depression of the land below its former level, enabling the sea to burst through its sand-banks, submerge the land, and form new deposits. The higher districts are composed of sand-drift mingled with fertile earths, and resting on a bed of clay. Coal is worked in Limburg; and a soft sandstone, which becomes fit for building purposes after having been some time exposed to the atmosphere, is quarried in the southern part of that province, which has also pipe and other clays. Valuable clays for pottery, tile, and brick making, abound in the various provinces.

The chief manufactures are linen, woolen, cotton, and silk fabrics; paper, leather, glass, etc. Leyden and Tilburg are famed for woolen blankets, wool-dyed pilot, fine cloths, and friezes; Hertogenbosch for linens and rich damasks; calicoes, shirtings, drills, tablecloths, striped dimities are made at Almelo, Amersfort, and in the leading towns of Overyssel. Good imitation Smyrna and Scotch carpets, and carpets of hair and wool, are manufactured at Deventer, Delft, Arnhem, Hilversum, Utrecht, and Breda; Turkey-red yarns, dyed silks, and silk stuffs at Roermond, Utrecht, Haarlem, etc.; leather, glass, firearms, at Maastricht and Delft; iron-founding, rolling and hammering of lead and copper, cannon-founding are carried

on at the Hague, etc.; and powder-mills at Muiden; Oudenkerk, Middelburg, Hertogenbosch, Amsterdam, Nymegen, etc., have important breweries. Waalwyk, Heusden, and surrounding districts, manufacture boots and shoes, of which Heusden sends to North and South Holland 1,000,000 pairs annually. Gin is distilled at Schiedam, Delft, Rotterdam, and Weesp. Amsterdam has the largest diamond-cutting trade in the world, 10,000 persons depending on that branch of industry. Sugar refining is largely carried on at Amsterdam, Rotterdam, and Dordrecht, from all of which sugar is exported to Russia, the Levant, and countries of Europe. Paper is chiefly made in Holland and Gelderland. The leading letter-type founders are at Amsterdam and Haarlem. Manufactures of every kind are being rapidly increased in number, and adding to the material prosperity of the Netherlands. The chief motive power is the windmill, which forms a never-failing element in the scenery; but of late years steam is becoming more general.

Fishing, not only in the inland waters, the coasts and bays of the North Sea, but also on the coast of Scotland, is vigorously pursued. In 1872 the total value of the herrings taken in the North Sea was about $450,000, 103 vessels having been employed; on the Netherland coasts, to the value of about $250,000, and in the Zuyder Zee, additional, 18,032,000 herrings were taken. The anchovy take, almost exclusively in the Zuyder Zee, amounted to 9000 anker, valued at about $90,000. There are productive oyster beds, besides extensive fishings of cod, ling, turbot, flounders, soles, shrimps, haddock, etc.; and from the rivers, salmon, eels, perch, etc.

The foreign commerce of the Netherlands, during the year 1873, was as follows:

	IMPORTS. IN GUILDERS.	EXPORTS. IN GUILDERS.*
Europe	533,390,000	459,799,000
America	39,838,000	8,125,000
Asia	23,207,000	435,000
Africa	2,747,000	890,000
Other countries	298,000	1,000
	599,480,000	469,250,000
COLONIAL POSSESSIONS.		
Java	82,485,000	43,083,000
West Indies	119,000	302,000
	682,084,000	514,635,000

The Guinea coast is not included in the above, the statistics for 1873 not being at command. During 1872, the imports 26,000, the exports 137,000 guilders. At the end of 1874 the merchant navy numbered 1827 vessels of 511,982 tons.

The constitution vests the whole legislative authority in a parliament composed of two chambers, called the States-General. The Upper House, or First Chamber, consists of 39 members, elected by the provincial states, from among the most highly assessed inhabitants of the various counties. The Second Chamber of the States-General, elected by ballot, at the rate of one deputy to every 45,000 souls, numbered 80 members in 1875. All citizens, natives of the Netherlands, not deprived of civil rights, and paying assessed taxes to the amount of not less than 20 guilders, are voters. Clergymen, judges of the High Court of Justice, and governors of provinces, are debarred from being elected. Every two years one-half the members of the Second Chamber, and every three years one-third of the members of the Upper House, retire by rotation. The Second Chamber has the initiative of new laws, and the functions of the Upper House are restricted to either approving or rejecting them, without the right of inserting amendments. The king has full veto power, but it is rarely, if ever, exercised. The executive authority is, under the

* The guilder equals 40 cents gold.

sovereign, exercised by a responsible council of ministers. The budget estimates for the year 1874, were as follows: Total revenue, 93,742,144 guilders; total expenditure, 93,742,144; estimated deficit, 6,244,740 guilders. The financial estitmates are always framed with great moderation, generally showing a deficit, which, in the final account, becomes a surplus. There is a separate budget for the great colonial possessions in the East Indies. The Netherlands East India estimates, for 1874, are thus summarized:

	GUILDERS.
Revenue from receipts in the Netherlands,	48,958,967
" " " in India,	74,639,232
	123,598,199
Expenditure in the Netherlands,	17,956,922
" " India,	95,096,698
	113,053,620
Contribution in aid of the Home Government, for 1874,	10,544,579
	123,598,199

At the commencement of the year 1874, the national debt was represented by a capital of 927,320,076 guilders. The regular army stationed in the Netherlands comprised, on the 1st of July, 1875, 1935 officers and 59,491 men. The colonial army, on the 1st of January, 1875, comprised 27,475 men, 12,310 of whom were Europeans, and 15,165 natives. The navy, on the 1st of July, 1875, consisted of 88 steamers, carrying 474 guns, and 27 sailing vessels, with 195 guns. At the beginning of the year 1875, there were 1668 kilometres of railway opened for traffic. Of these, 853 belonged to private companies and 815 to the State. The number of post offices at the commencement of 1875 was 1241; the number of letters carried during the year, 44,396,330. The length of telegraph lines, January 1st, 1875, was 3431 kilometres; the length of wires, 12,365 kilometres; the number of offices, 328. During the year 1874 the number of telegrams carried was 2,084,121. Under the working of the primary instruction law, there were, in January, 1871, according to government returns, 2608 public schools, with 6538 schoolmasters and 477 schoolmistresses, and 1119 private schools with 2332 schoolmasters and 1565 schoolmistresses. At the same date the pupils in the public schools numbered 390,129, and the pupils in the private schools, 111,762. There were, also, in 1871, 81 schools of middle instruction, with 7047 pupils, and 55 Latin schools, with 1128 pupils. There are three universities, Leyden, Groningen, and Utrecht, with 1339 students in January, 1871, and a polytechnic institution, at Delft, with 171 pupils.

COLONIES.

The colonial possessions of the Netherlands embrace an area of 666,756 English square miles. The total population, according to the last returns, was 24,386,991.

The East Indian island of Java, possessing, with the adjoining Madura, an area of 51,336 English square miles, and a population, at the end of 1872, of 17,298,200, is by far the most important of the colonial possessions of the Netherlands. The whole of the other Netherlands possessions in the East Indies are administered as dependencies of Java.

Almost the entire trade of Java and Madura is with the Netherlands, and there is comparatively little commercial intercourse with other countries. The total imports, including specie, for 1873, were 108,304,000 guilders; total exports, including specie, 155,881,000 guilders. The principal articles of export from Java are sugar, coffee, rice, indigo, and tobacco. The imports of the other East Indian possessions, during 1873, were 42,486,000 guilders; the exports, 41,869,000 guilders.

The Dutch West India Islands, of which Curacoa is the most important, have a total population of 36,160, and an area of about 400 square miles. Surinam, with an area of about 45,000 square miles has a population of 69,834.

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NETHERLANDS.

(North of Nave, Columns 60 to 65.)

Minerals, Precious Stones, Mining Products.

Minerals, Ores, Stone, Mining Products.

1 Lent, W., Schooten.—Iron and cinnabar. 100

2 Seirat, C. H. A., Utrecht.—Peat pressed by machinery. 101

3 Onduwater, H. F., Dordrecht.—Stones for pavement. 102

4 Van Verschuur & Van der Voort, Amsterdam.—Unpolished stones. 102

5 Borst & Roggenkamp, Delfzyt.—Portland cement stones, lithographic stones, oilstones, whetstones, grindstones, polishing material, and sand quartz; garnets, raw topazes, diamonds, tripoli, and corundum. 106

SWEDEN.—STATISTICAL PREFACE.

SWEDEN and Norway (Sverige and Norge), two independent kingdoms, but under a common king, form the Seandinavian peninsula, whose shores are washed by the waters of the Gulf of Bothnia, the Baltic, the Sound, the Kattegat, the Skager-Rack, the North Sea, the Atlantic and Arctic Oeeans, and is thus completely separated from the mainland, with the exception of its northeastern part. The length of its coast, whieh is indented with numerous bays and fiords, and proteeted from the brunt of the sea by innumerable islands and roeks, may be estimated at about 3200 English miles, eaeh kingdom possessing about one-half. The Seandinavian peninsula, of whieh Sweden forms the eastern and southern part (58 per eent.), while Norway makes up the rest (42 per cent.), embraces an area of 13,830 geographical square miles (294,000 English square miles). The united kingdoms have a population of rather more than six millions, of whieh 70 per eent. belong to Sweden, and 30 per eent. to Norway. The statistics of Norway are given elsewhere in this catalogue.

Although Sweden extends northward to latitude 69° 3′ 21.1″, thus passing beyond the Arctie cirele, it reaches southward to latitude 55° 20′ 18″, eoming within the latitude of its neighboring state, Denmark, and even further south than that part of Prussia whieh projects northward along the eastern shore of the Baltie. The total length of Sweden, from north to south, is about 950 English miles, and the width from 200 to 250 English miles. The observatory of Soekholm lies 18° 3′ 29.85″ east of Greenwieh.

The läns (governments or departments) are the largest administrative divisions of the eountry, and frequently have two names, one of which is derived from the seat of government, the other usually from the old division of the provinces. The geographie division of the kingdom into three parts stands in intimate relation with the old provincial division. The three geographical divisions are as follows: Svealand (the eentral), Götaland (the southern), and Norrland (the northern); and though the boundaries of the läns and the provinees do not quite eorrespond, the following may on the whole be stated as eorrect:

Svealand has six provinces: Uppland, Södermanland, Westmanland, Nerike, Vermland, and Dalecarlia (or Dalarne).

Görland has nine provinees: Ostergötland, Westergötland, Dalsland, Småland, Gottland, Blekinge, Scania or Skäne, Halland, and Bohnslaw.

Norrland comprises Gestrickland, Helsingland, Medelpad, Angermanland, Jemtland, Herjedalen, and Westerbotton, together with Lapland.

Lapland, the most northern part of Sweden, bordering on Norway, has an area of about 40,000 English square miles, and, together with Norrland, forms more than one-half the whole area. This vast territory is, of all the Swedish provinces, the least adapted to agriculture, and is but sparsely populated.

In 1874, the population of Sweden was divided among the different läns, as follows:

NAMES.	POPULATION.
The town of Stockhom,	150,446
Län of Stoekholm,	134,620
" Uppsala,	103,282
" Södermanland,	139,216
" Ostergötland,	262,872
" Jönköping,	186,841
" Kronoberg,	163,793
" Kalmar,	238,399
" Gottland,	54,499
" Blekinje,	130,921
" Kristianstad,	228,498
" Malmöhus,	330,115
" Halland,	130,802
" Göteb, and Bohus,	241,936
Län of Elfsborg,	285,217
" Skaraborg,	250,257
" Vermland,	266,362
" Orebro,	177,084
" Westmanland,	121,018
" Kopparberg,	184,330
" Gefleborg,	160,487
" Westernorrland,	147,212
" Jemtland,	74,758
" Westerbotten,	96,607
" Norrbotten,	81,987
Total,	4,341,559

The area is stated at 171,749 English square miles.

Sweden is generally less mountainous than Norway, and the highest mountains are found just on the border of that country. The boundary line itself is supposed to run along a mountain chain, which is called by geographers the Kölen, though in reality there is no mountain of that name. The highest mountain in Sweden, Sulitelma (6315 Swedish feet above the level of the sea), lies in Lapland, and is the only alpine elevation in Sweden where, as far as is known, glaciers are found, but there are other mountains in these districts, and still further south along the frontier of the kingdom, in Jemtland and Herjedalen, with an elevation of from 4000 to 5000 feet, whose peaks are dotted with patches of snow the whole year round.

About eight per cent. of the area of Sweden is considered to lie upwards of 2000 feet above the level of the sea. Those parts which sometimes extend beyond the tree-line are exclusively in Norrland and Dalarne, and border upon Norway. The coast-line along the Gulf of Bothnia, and the whole of the central and southern parts of Sweden, lie, with few exceptions, lower than 800 feet above the level of the sea. Of the whole area of the kingdom, a third part does not lie 300 feet above the level of the sea, and it is within these lower lying districts that the most highly cultivated parts of the country are found, as well as the largest plains, such as the Uppland, the Ostgöta, the Westgöta, and the Skane plains. With the exception of these, the plains are neither numerous nor large, for, though there are extensive tracts of land which attain a height of only a few hundred feet above the level of the sea, these are generally intersected by numerous hills and valleys.

Sweden, next to Finland, is the best irrigated country in Europe, as her lakes and rivers cover an area of 14,428 English square miles, or 8.4 per cent. of her whole territory, while she has a sea coast of 1500 English miles. The water of the Swedish lakes, as well as that of the rivers, is generally clear and drinkable. Lake Wetter is especially known for its clear, but at the same time turbulent, body of water, as well as for its great depth—420 feet. Of the numerous rivers (or elfs) which flow into the Gulf of Bothnia, the Angerman elf is the best known, not only for its volume, but for its natural beauty. The Dal elf, which is usually considered as the dividing line between Norrland and the southern part of Sweden, empties further to the south. On the west coast flows the Göta elf, the outlet of Lake Wener, famed for the Trollhätta waterfall.

Almost every river or stream forms a foaming current or roaring cataracts, and there are thousands of them. Even the Trollhätta finds a rival in the Njommelsaska (Hare's Leap), in Lapland. One of the peculiarities of these lakes is that they are sometimes interrupted by an almost perpendicular fall—the water then spreading out, forming a second part of the lake. The nation possesses in these numerous falls an almost inexhaustible water power, which has not, as yet, been utilized to that extent which it might be. This character of the Swedish rivers carries with it, however, the disadvantage of rendering them innavigable, many of the rivers (the Dal elf, for instance) being barred at their very mouths by a fall; and, as a rule, they are navigable only for a mile or two, except for rafts and small boats, unless, as in the case of the Göta elf, they are provided with canals

The climate of Sweden is mild in comparison to its high latitude, a fact which is attributed to the influence of the Gulf Stream. There are dense forests; and barley and rye mature in the province of Norrland, while its most southern part lies in the same latitude as the ice fields of Greenland, and its northern in that of barren Iceland. The country, extending through so many degrees of latitude, has a great variety of climate. The mean yearly temperature of the northern parts along the coast is 34° F., while that of the southern is 44° to 46° F. The mean yearly temperature of Stockholm is 41° F. The wells which serve as a measure of the earth's temperature, give about the same figures, the average temperature of a deep well in central Sweden being 43° F., while it is not unusual in Lapland to find a deep well covered with ice in midsummer, or a bog, 5 to 6 feet deep, frozen at its bottom; nevertheless,

the eereals and potatoes mature in these distriets, for although the summer is short, it is very warm and clear. There ean searcely be said to be any night here during the summer, only a twilight, so that vegetation, even in this high latitude, receives the light and heat neeessary for its ripening. The temperature of the southern parts is also subjeet to very great ehanges.

The farmers' worst enemy in Sweden is the frost, whieh in a single elear night, perhaps, after a warm summer day, will destroy his brightest prospects; but it is hoped that the increase of tillage, the draining of the bogs, and like eauses, will at least mitigate its severity, if not altogether prevent it. Sueh severe frosts are very rare in the eentral and southern parts of Sweden.

(The greater portion of the foregoing was furnished by the Swedish eommission.)

Mining is one of the most important departments of Swedish industry, and the working of the iron mines in particular is making eonstant progress by the introduetion of new maehinery. There were raised, in the year 1873, 19,458,339 hundredweight of iron ore from mines, besides 126,147 hundredweight from lake and bog. The pig iron produeed amounted to 7,987,646 hundredweight, the east goods to 501,350 hundredweight, the bar iron to 4,125,915 hundredweight, and the steel to 1,290,907 hundredweight. There were also raised, in the same year, 1660 pounds of silver, 26,152 hundredweight of eopper, and 645,631 hundredweight of zinc ore. There are large veins of coal in various parts of Sweden, but no systematic working of them has as yet taken plaee.

The prineipal artieles of cultivation are, in addition to the various eereals, potatoes, hemp, flax, tobacco, and hops, which are generally grown in sufficient quantities for home consumption. The forests are of great extent, eovering nearly one-fourth of the whole surface, and, in some spots, rising to an elevation of 3000 feet above the level of the sea. The bireh, fir, pine, and beech are of great importanee, not only for the timber, tar, and piteh which they yield, but also for their supplying eharcoal and firewood. The eommon fruit trees, as eherries, apples, and pears, grow as far north as 60°, but the fruit seldom eomes to great perfection except in the southern provinces; eranberries and other berries abound in all parts of the eountry.

In 1870, there were in Sweden, 428,446 horses, 1,965,800 horned cattle, 1,780,000 sheep and goats, and 354,303 swine.

In 1873, there were 2549 faetories, with a produetion valued at 146,869,000 erowns.* Mines and mining establishments are not ineluded in these figures. Ship building forms an extensive branch of industry.

Aeeording to the "Statesman's Year Book for 1876," the eommereial navy of Sweden, at the end of 1873, numbered 1865 registered vessels for foreign trade, of a total burthen of 366,370 tons. The total imports, for the same year, were 271,440,000 riksdalers,† and the exports, 221,904,000.

Sweden is a eonstitutional monarehy, based on the fundamental law of 1809, by whieh it was decreed that the succession should be in the male line; that the sovereign should profess the Lutheran faith, and have sworn fidelity to the laws. The diet, whieh meets every year, and remains sitting for three or four months, is eomposed of two ehambers, which are both eleeted by the people. The members of the first chamber serve for nine years, and those of the seeond for three. The diet exereises a striet control over the expenditure of the revenue, fixes the budget, and has power to take eognizanee of the aets of the ministers and crown offieers. The king's person is inviolable, and he ean exercise a veto on the decrees of the diet. He is assisted by a Counеil of State, eomposed of ten members, who are responsible to the diet.

The budget estimates for 1875 place the reeeipts at 64,775,900, and the expenditures at 71,885,798 riksdalers. At the end of Oetober, 1875, the public liabilities of the kingdom were 130,477,920 riksdalers.

* The Swedish crown equals 26.8 cents. † One riksdaler equals one crown.

The total strength of the armed forces of Sweden, at the end of September, 1875, was 132,775. The navy consists of 131 vessels, of 3183 horse-power, carrying 394 guns, and with crews aggregating 4693.

At the end of September, 1875, the total length of railways opened for traffic was 2237 English miles, of which 938 miles belonged to the State. All the telegraphs, with the exception of those of private railway companies, belong to the State. The total length of telegraph lines, at the end of 1874, was 4981 English miles; the total length of wires, 10,980 English miles. The total number of dispatches sent, in the year 1874, was 986,397.

The Swedish post office carried 16,711,100 letters in the year 1873. The number of post offices, at the end of the year, was 641.

Education is well advanced in Sweden. Public instruction is gratuitous and compulsory, and children not attending schools under the supervision of the government must furnish proofs of having been privately educated. In the year 1871 nearly 97 per cent. of all the children between eight and fifteen years visited the public schools.

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SWEDEN.

(North of Nave, Columns 6 to 11.)

Minerals, Ores, Stone, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

1 Adelsvärd, Baron, Th., Atvidaberg.—Copper ore. 100

2 Bofors Stock Co., Gullspang, Bofors.—Iron ores. 100

3 Berg, Axel, Warby, Stockholm.—Iron ores. 100

4 Berg, Gottfried, Warby, Stockholm.—Zinc, galena, and nickel ores, pyrites. 100

5 Fagersta Stock Co., Westanfors.—Iron ores. 100

COLLECTIVE EXHIBIT OF IRON MANUFACTURERS, STOCKHOLM.

6 Avesta Garpenbergs Stock Co., Avesta.—Iron ores. 100

7 Björneborgs Stock Co., Björneberg.—Iron ores. 100

8 Degerfors Stock Co., Degerfors in Wermland.—Iron ores. 100

9 Ekman, Carl, Finspong.—Iron ores. 100

10 Gysinge Iron Works, Gysinge.—Iron ores. 100

11 Hermansson, Count C. F. von, Ferna, Bernshammar.—Iron ores. 100

12 Hofors & Hammarby, Hammarby, Storvik, Gefle.—Iron ores. 100

13 Larsbo Norns Stock Co., Kafalla.—Iron ores. 100

14 Laxa Stock Co., Laxa.
a Iron ores. 100
b Pig iron, blooms, and iron bar. 111

15 Lesjöfors Stock Co., Filipstad.—Iron ores. 100

16 Lindberg, Lars, Kohlsva.—Iron ores. 100

17 Löfvenskiöld, Salomon, Nissafors, Jönköping.—Iron ores. 100

18 Ramnäs Stock Co., Ramnäs.
a Iron ores. 100
b Pig, bar iron, and slag. 111

19 Rettig, C. A., Kilafors, Söderhamn.—Iron ores. 100

20 Schisshyttan Molnebo Manufacturing Co., Morgongäfva.
a Iron ores. 100
b Spiegeleisen. 111

21 Stockenström, Axel von, Akers Manufacturing Co., Mariefred.—Iron ores. 100

22 Kopyrarbergs Factory, Stockholm.—Iron ores. 100

23 Sundström, J. O., Charlottenberg.—Iron ores. 100

24 New Gellivara Company (limited), Lulea.—Iron ores. 100

25 Osterby & Strömbacka, Osterby.—Iron ores. 100

26 Uddeholms Stock Co., Rada.—Iron ores. 100

27 Wedberg, C. H., Hammarby, Jerla.—Iron ores. 100

28 Nordenskiöld, A. E., Stockholm.—Meteorite from Greenland. 100

29 Sandvikens Stock Co., Sandviken.—Iron ores. 100

30 Schough, Robert, Lulea.—Iron ores, copper ores. 100

31 Geological Society of Sweden, Stockholm.—Geological collections. 100

32 Höganäs Coal Works, Höganäs.—Mineral coal. 101

33 Samuelson, S. H., Föskefors, Rada.—Peat. 101

34 Westerlund, A. F., Nybro, Kalmar.—Peat. 101

35 Berg, Gottfried, Wärby, Stockholm.—Porphyry, serpentine, and marble. 102

36 Klintberg, J. W., Wisby.—Marble, petrifactions. 102

37 Kullgrens', C. A., Widow, Uddevalla.—Polished granite. 102

38 New Marble Works Stock Co., Norrköping.—Manufactured marble. 102

39 Skaanska Cement Stock Co., Malmö.—Portland cement, raw materials and products. 103

40 Rörstrands Stock Co., Stockholm.—Feldspar. 104

41 Höganäs Coal Works, Höganäs.—Fire clay, fire brick. 104

42 Berg, Gottfried, Warby, Stockholm.
a Graphite. 105
b Grindstones. 106
c Vivianite. 107

43 Berg, Chr. Lud., Eriksberg, Stockholm.—Mineral waters. 107

44 Mineral Water Stock Co., Stockholm.—Mineral waters. 107

Metallurgical Products.

45 Bofors Stock Co., Gullsprang, Bofors.—Pig iron, blooms, bar iron, wire rods, and iron plate. 111

46 Fagersta Stock Co., Westanfors.—Pig iron, Bessemer steel ingots, bars, plates, etc.; steel samples, showing the strength of the steel. 111

Metallurgical Products.

47 **Göteborgs Mechanical Works Stock Co., Göteborg.**—Crown of a flue. 111

COLLECTIVE EXHIBIT OF IRON MANUFACTURERS, STOCKHOLM.

48 **Ankarsrums Works, Ankarsrum.**—Pig iron, blooms, iron bars, wire rods, and railway crossings. 111

49 **Avesta Garpenbergs Stock Co., Avesta.**—Pig iron, blooms, and bar iron. 111

50 **Björneborgs Factories, Bjorneborg.**—Pig iron, Bessemer steel ingots, and manufactured Bessemer steel. 111

51 **Degerfors Stock Co., Degerfors, Wermland.**—Pig iron, blooms, wire rods, and plate. 111

52 **Ekman, Carl, Finspong.**—Pig iron for guns, and malleable blooms, and bar iron. 111

53 **Gysinge Iron Works, Gysinge.**—Iron in the pig and bars, with specimens of slag. 111

54 **Von Hermansson, C. F., Count, Ferna, Bernshammar.** Pig iron, spiegeleisen, and bar iron. 111

55 **Hofors & Hammarby, Hammarby, Storvik, Gefle.**—Pig iron, blooms, and bars, with specimens of slag. 111

56 **Larsbo, Norns, Stock Co., Kafalla.**—Pig iron, blooms, bar iron, and angle iron. 111

57 **Lesjöfors Stock Co., Filipstad.**—Pig iron, ingots of Bessemer and Martin steel, bars, wires, and wire rope of the same material. 111

58 **Lindberg Lars, Kohlsva.**—Pig iron, bar iron, and wire rods. 111

59 **Löfvenskiöld, Salomon, Nissafors, Jönköping.**—Iron in the pig and bars. 111

60 **Rettig, C. A., Kilafors, Söderhamn.**—Pig and bar iron. 111

61 **Von Stockenström, Axel, Mariefred.**—Pig iron for malleable iron. 111

62 **Bergslag Iron Works, Stockholm.**—Pig iron, Bessemer ingots, blooms, bar iron, and samples of iron showing the quality. 111

63 **Sundström, J. O., Charlottenberg.**—Pig iron, bar iron, and spikes. 111

64 **New Gellivara Company (limited), Lulea.**—Pig iron, bar iron, and nails. 111

65 **Asterby & Strömbacca, Osterby.**—Pig iron, Bessemer steel ingots and bars, blister steel, crucible cast steel, and bar iron. 111

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66 **Surahammars Stock Co., Surahammar.**—Iron plate, puddled iron, and steel bars, railway wagon wheels and axles. 111

67 **Uddeholms Stock Co., Rada.**—Pig iron, ingots of Bessemer and Martin steel, and iron in bars, springs. 111

68 **Larsson, P. M., Löa, Rällsa.**—Samples of pig iron. 111

69 **Motala Mekaniska Stock Co., Motala.**—Iron and steel in bars, plates, and sheets, with products of working. 111

70 **Sandvikens Iron Works, Sandviken.**—Pig iron, Bessemer steel ingots, forgings for engines, steamers, etc. 111

72 **Adelswärd, Th., Baron, Atvidaberg.**—Copper in ingots, with specimens illustrating its various stages of production. 112

73 **Skultuna Stock Co., Westeras.**
a Copper, with products of working. 112
b Brass in different stages of production. 114

(*For rails, railway and wagon wheels, tires, axles, etc., see Class 573, Machinery Hall.*)

NORWAY.—STATISTICAL PREFACE.

NORWAY, the western portion of the Scandinavian peninsula, is situated between 57° 58′ and 71° 10′ north latitude, and between 5° and 28° east longitude. It is bounded to the east by Sweden and Russia, and on every other side is surrounded by water, having the Skagerrak to the south, the German Ocean to the west, and the Arctic Sea to the north. Its length is about 1100 miles, and its greatest width about 250 miles; but between the latitudes of 67° and 68° it measures little more than 25 miles in breadth. The area is given as 121,779 square miles, and the population as 1,800,000. Only 1.6 per cent. of the whole area can be cultivated; natural pastures occupy about 1.5 per cent; forests, about 20.2 per cent.; mountains, glaciers, lakes, rivers, and land, etc., about 76.7 per cent. The whole of the Scandinavian peninsula consists of a connected mountain mass, which, in the southern and western parts of Norway, constitutes one continuous tract of rocky highlands, with steep declivities dipping into the sea, and only here and there broken by narrow tracts of arable land. South of Trondjem (63° north latitude) the rocky ridge expands nearly the entire breadth of Norway. The northern portions of the range, known as the Kiöllen

Fielle, occupy a space of about 25 miles in width, and form, as far north as 69°, the boundary line between Sweden and Norway. South of 63° north latitude the range of the Scandinavian mountains is known as the Norske, or Dovre Fielle, although the latter name belongs properly only to the part immediately in contact with the Kiöllen. This range, about 360 miles in length, attains its greatest elevation at the Sogne Fjord, where it is known as the Hurungerne. Here the highest summits are 8000 and 8400 feet above the sea, while the contiguous snowfields of Justedal, the largest in Europe, and covering an area of 600 square miles, have probably an elevation of nearly 7000 feet. From these and other vast snowfields, averaging more than 10 miles in width, vast glaciers descend to within 2000 feet above the sea, where they often terminate in deep lakes, some of which are very extensive. The upper valleys of this range, although generally too high for cultivation, contain the best timber that is exported from Norway, and afford good pasturage in the height of the summer, when the flocks and herds are driven thither from the lowlands near the entrance of the fjords. The general elevation of the Norska Fielle does not rise above the line of perpetual snow, whose average height in these latitudes is 5000 feet, but it ranges above that of the growth of trees, which may be stated to lie 1000 feet lower. The most northern part of the Norska Fielle, which is known as the Dovrefield, and includes Sneehätten, nearly 7500 feet above the sea, presents a broken surface, rent with ravines and narrow valleys, which admit of cultivation, but are difficult of access from the configuration of the land around them.

The Scandinavian range consists principally of primitive and transition rock, and exhibits almost everywhere the effect of glacial action, the glaciers and moraines presenting the same appearances as in the Swiss alpine district. The numerous islands which skirt the coast of Norway, and must be regarded as portions of the range, present the same characters as the continental mass. Some of these, as the islands of Alsten and Dunnoe, rise perpendicularly from the sea with peaks penetrating beyond the snowline, which lies here at an elevation of 4000 feet. Norway abounds in lakes and streams; according to some topographers, there are upwards of 30,000 of the former, of which the majority are small, while none have an area exceeding 400 square miles. The chief rivers of Norway are the Glommen, Lougen, Louven, Drammen, Otter, and Wormen. The first of these has a course of 400 miles, but the majority of the Norwegian streams, all of which rise at great elevations, have a comparatively short course, and are unfit for navigation, although they are extensively used to float down timber to the fjords, whence the wood is exported in native ships to foreign ports. These fjords, or inlets of the sea, which form so characteristic a feature of Norwegian scenery, and give with their various sinuosities a coast-line of upwards of 8000 miles, form the outlet to numerous rapid streams and waterfalls, which leap or trickle down the edges of the treeless fields or mountain flats above.

The peculiar physical character of Norway necessarily gives rise to great varieties of climate in different parts of the country. The influence of the sea and of the Gulf Stream, and the penetration into the interior of deep inlets, greatly modify the severity of the climate on the western shores, and render it far superior to that of the other Scandinavian countries in the same latitude. In Norway proper, the winters, as a rule, are long and cold, and the summers, which rapidly follow the melting of the snows in April and May, are warm and pleasant. On the islands, however, the heats of summer are often insufficient to ripen corn.

Norway had, in 1875, 150,000 horses, 950,000 oxen and cows, 1,710,000 sheep and goats, 110,000 pigs, and 102,000 reindeer. The value of the annual product is about $25,000,000.

The principal cereals cultivated in Norway are oats, barley, corn, rye, and wheat; the yearly produce is about 11,160,000 bushels, besides 14,100,000 bushels of potatoes. The value of the harvest amounts to about $16,000,000 per annum.

The products of agriculture and cattle-breeding being insufficient to supply the wants of the country, considerable quantities are imported.

Forestry is of great importance. As stated above, the forests of Norway cover more than one-fifth of its entire area. They supply considerable quantities of timber, both for home consumption and exportation. The average annual exports of timber amount to about $16,000,000.

The fisheries of Norway employ about 27,000 men, and yield about $16,000,000 per annum. They are of great importance, and not only yield one of the most important articles of home consumption, but at the same time constitute one of the most profitable sources of foreign export. Fish are caught in almost every stream and lake of the interior, as well as in the fjords of the coast, and in the bays and channels which encircle the numerous islands skirting the long sea-line of Norway. These fish are principally cod and herring. Cod, prepared as stock-fish or dried salt fish, is exported to Spain and Italy; herring to the Baltic ports.

The merchant marine of Norway had, in 1875, a tonnage of 1,220,000, and was manned by 53,000 seamen.

The following statistics apply to the exports and imports of Norway in 1873:

Value of goods exported,	$33,000,000	
Gross freight of goods carried in Norwegian vessels,	28,400,000	
Receipts from various sources,	800,000	
		$62,200,000
Value of goods imported,	$45,800,000	
Expenses of Norwegian vessels in foreign countries,	11,400,000	
Other expenses,	2,400,000	
		59,600,000
Balance,		$2,600,000

The principal articles of export were, in 1873: Products of the fisheries, $11,600,000; of forestry, $15,500,000; of agriculture and cattle-breeding, $1,300,000; metals and minerals, $1,800,000; textile fabrics, $660,000.

The imports were principally: Articles of food, $13,500,000; coffee, $3,500,000; liquors, $1,000,000; textile fabrics and dry goods, $8,300,000; hardware, $3,300,000; hides, $1,200,000; coal, $1,700,000; vessels, $4,400,000.

Manufactures have made some progress during the last few years, but are, as yet, inconsiderable. About 32,000 persons are employed, mainly in sawmills, planing mills, brick factories, shipbuilding, and metallurgical and textile industries.

The mineral products comprise silver, copper, cobalt, iron, chrome, ironstone, etc., and yield an annual income of nearly $1,000,000.

Education is compulsory, parents being bound to let their children, between the ages of seven and fourteen, receive public instruction; 241,000 children attend the common schools, and 16,500 receive a higher instruction. The expenses of the higher schools were, in 1873, $827,000.

The public revenue, in 1873, was $6,870,000, and the expenditures $7,277,000, of which amount $865,000 was for the construction of railways. The public debt amounts to $9,200,000.

Norway has 12,432 miles of highways and district roads, 304 miles of railways, and 147 miles of canals. There are 719 post offices, which distribute 7,500,000 letters per annum.

(The foregoing statistics are furnished by the Norwegian Commission.)

According to "Martin's Year Book," there were, at the end of 1873, telegraph lines of the length of 3745 miles, and wires of the length of 5845 miles.

The government of Norway is a constitutional monarchy. The executive is represented by the king, who exercises his authority through a Council of State, composed of one minister of state and nine councillors. The legislative power of the realm is the Storthing, or Great Court, the representative of the sovereign people.

On the 1st of January, 1874, the troops of the land numbered 13,000 men. The reserve forces at the same time numbered 19,000, and the landwaern 11,000 men. The naval force comprised, at the same date, twenty vessels, all steamers, with an armament of 149 guns.

Commission from NORWAY to the International Exhibition:

HERMAN BAARS. WM. C. CHRISTOPHERSEN.
GERHARD GADE, U. S. Consul.

NORWAY.

(*North of Nave, Columns 4 to 7.*)

Mining and Metallurgy.

Minerals, Ores, Building Stones, Mining Products.

1 **Geological Survey of Southern Norway**, Director Th. Kierulf, Christiania.
a Stones, eruptive rocks, leading strata, constituents of coarse granite dykes. 100
b Manuscript maps, natural sections, generalized representations, printed maps. 335

2 **Fasmer & Son, I. H.,** Bergen.—Feldspar. 100

3 **Hinderager Mining Co.,** Bergen.—Copper ore, pyrites. 100

4 **Hoyem, Andr.,** Bergen.—Titanium iron ore. 100

5 **Kongsberg Silver Mines,** Kongsberg.
a Ores, crystals. 100
b Silver in bars. 110

6 **Bamble Nickel Mines, Johan Dahll,** Kragero.—Samples of nickel ores, with specimens illustrative of the melting process. 100

7 **Glorud Nickel Co., F. H. Frolich & Son,** Christiania.—Nickel ores. 100

8 **Luttensee, Georg,** Christiania.—Quarry stone for street pavement and curbstones. 102

9 **Moestue & Co., Thv.,** Christiania.—Slates for tables, roofs, and floors, from Slidre quarries. 102

10 **Pettersen, Karl,** Tromso.—Granite, labbro and other massives, raw and polished, geological map with description. 102

11 **Frolich & Son, F. H.,** Christiania.—Collection of Norwegian apatite ores (phosphate of lime). 103

12 **Birch, F.,** Selboe.—Millstones. 106

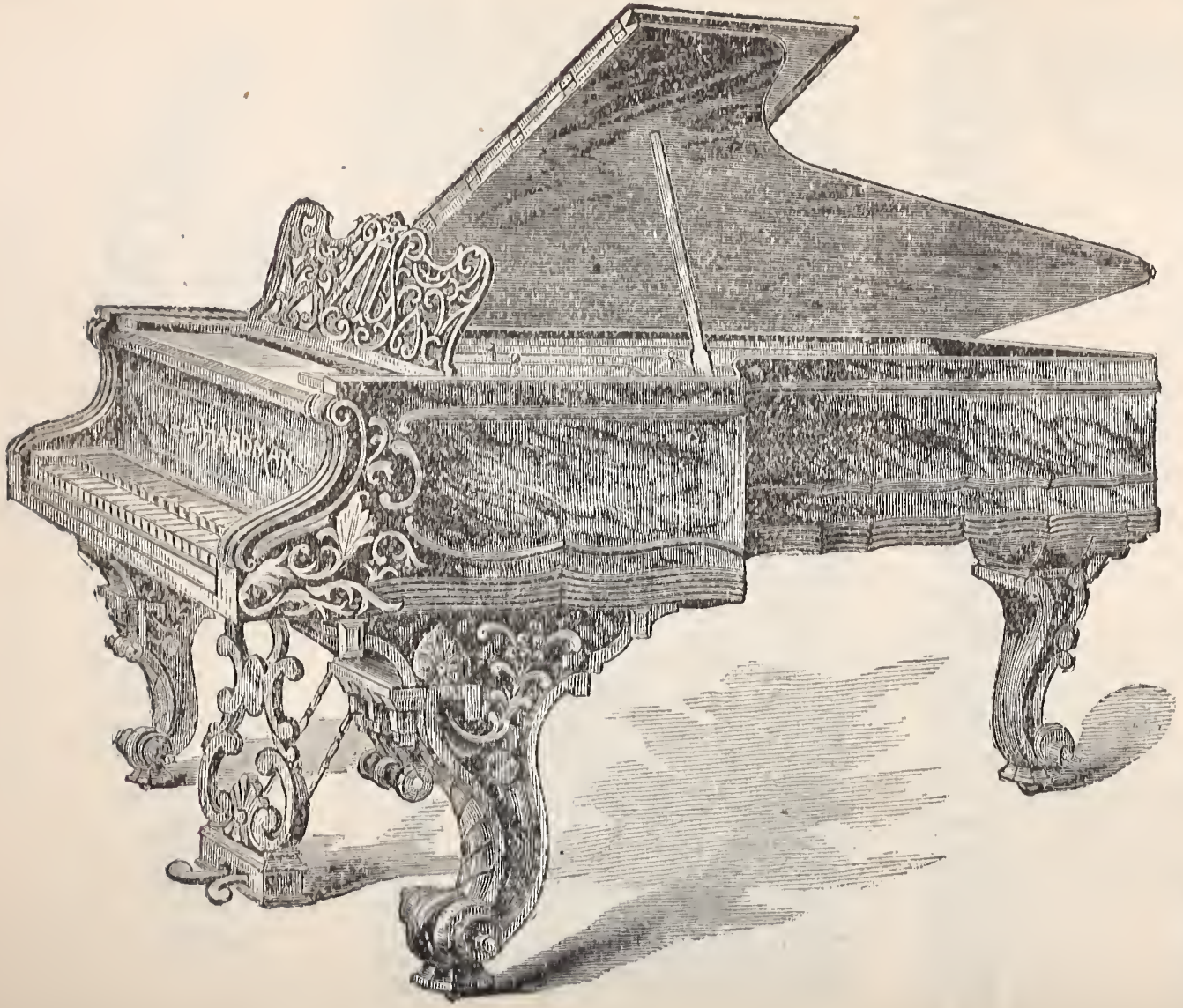
13 **Geological Survey of Southern Norway,** Assistant Geologists W. Brogger and H. Reusch, Christiania.—Contents of giant-kettles, spiral marked interior grinding-stones. 106

14 **Christiania Millstones Manufacturing Co.,** Christiania.—Millstones. 106

15 **Lönseth, Fred.,** Christiania.—Millstones from Sælbo, flint millstones. 106

16 **Royal Norwegian Commission,** Christiania.—Iron and steel from Messrs. J. Aall & Son, Næs & Egelands Foundries. 111

17 **Cathrineholms Iron Works and Foundry,** Fredrikshald.
a Stoves and other wrought iron. 222
b Anchors, chains. 284



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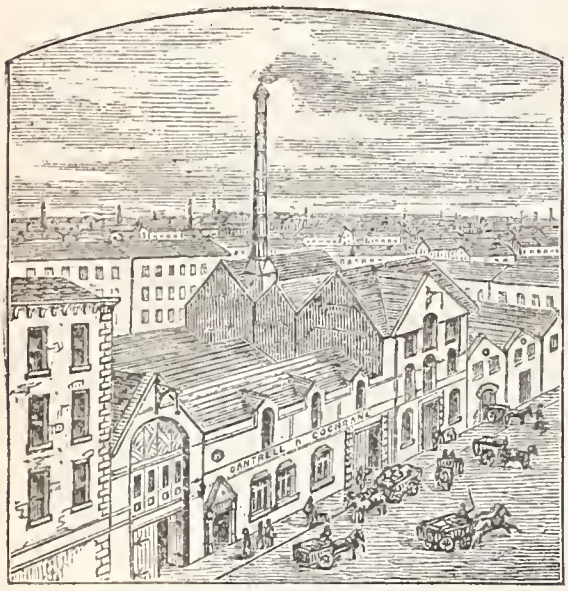
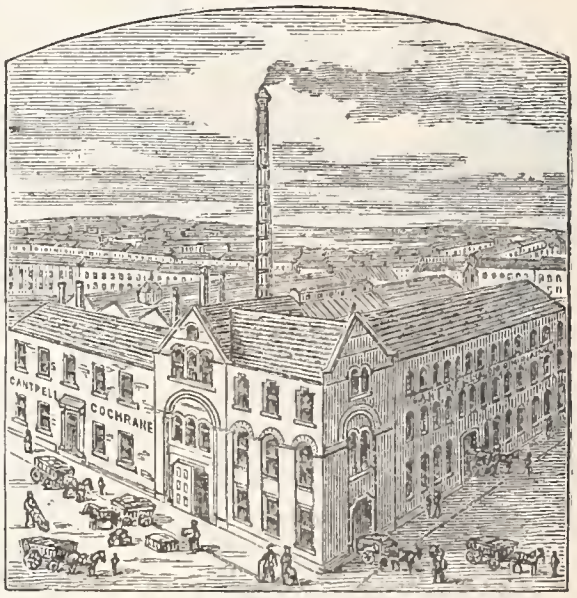


Works DUBLIN The Nassau.



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ITALY.—STATISTICAL PREFACE.

THE geographical territory comprised under the name of Italy consists of a considerable stretch of peninsular mainland, besides several islands, situated in Southern Europe, between latitude 36° 35′ and 47° north, and between longitude 6° 35′ and 18° 35′ east. From the southern extremity of Sicily to the Alps its maximum length is about 600 miles, its utmost breadth being 300 miles. Its boundaries on the north are Austria and Switzerland, on the south the Mediterranean, on the west France and the Mediterranean, and on the east the Ionian and Adriatic seas, while its natural limits are strongly defined by the Alps and the sea.

The first general census of the kingdom of Italy was taken by the government on the 31st of December, 1871, on which date the population numbered 26,796,073 souls, living on an area of 296,013 square chilos, or 112,677 English square miles. The density of population was 237 per English square mile.

The kingdom of Italy is administratively divided in 69 provinces, as follows:

	POPULATION.	
PIEDMONT AND LIGURIA.		
1. Alessandria,	683,361	
2. Cuneo,	617,232	
3. Genoa,	716,284	
4. Novara,	624,969	
5. Porto Maurizio,	127,042	
6. Turin,	972,988	
		3,741,876
ISLAND OF SARDINIA.		
7. Cagliari,	392,981	
8. Sassari,	243,274	
		636,255
LOMBARDY.		
9. Bergamo,	368,152	
10. Brescia,	456,023	
11. Como,	477,642	
12. Cremona,	300,595	
13. Milan,	1,009,794	
14. Pavia,	448,357	
15. Sondrio,	111,240	
		3,171,803
EMILIA.		
16. Bologna,	439,232	
17. Ferrara,	216,545	
18. Forli,	234,090	
19. Massac Carrare,	161,944	
20. Modena,	273,231	
21. Parma,	264,509	
22. Piacenza,	225,775	
23. Ravenna,	220,801	
24. Reggio,	240,635	
		2,276,762

	POPULATION.	
THE MARCHES.		
25. Ancona,	262,369	
26. Ascoli Piceno,	203,008	
27. Macerata,	236,994	
28. Pesaro e Urbino,	213,072	
		915,443
UMBRIA.		
29. Perugia,		549,833
TUSCANY.		
31. Arezzo,	234,645	
31. Florence,	766,611	
32. Grosseto,	107,457	
33. Leghorn,	118,851	
34. Lucca,	280,399	
35. Pisa,	265,959	
36. Sienna,	206,446	
		1,980,368
NEAPOLITAN PROVINCES.		
37. Aquila,	332,782	
38. Avellino,	375,237	
39. Bari,	604,540	
40. Benevento,	232,012	
41. Campobasso,	364,843	
42. Caserta,	695,754	
43. Catanzaro,	412,226	
44. Chisti,	340,299	
45. Cosenza,	440,272	
46. Foggia,	322,754	
47. Lecce,	493,574	
48. Naples,	908,029	
49. Potenza,	509,202	
50. Reggio,	353,606	
51. Salerno,	541,739	
52. Teramo,	245,684	
		7,171,553
SICILY.		
53. Caltainisetta,	230,066	
54. Catania,	495,240	
55. Girgenti,	289,018	
56. Messina,	420,649	
57. Palermo,	617,660	
58. Siracusa,	294,915	
59. Trapani,	236,388	
		2,583,936
VENETIA.		
60. Belluno,	175,370	
61. Mantua,	288,942	
62. Padua,	364,355	
63. Rovigo,	200,835	
64. Trevise,	352,538	
65. Udine,	481,787	
66. Venezia,	337,539	
67. Verona,	367,426	
68. Vicenza,	363,161	
		2,931,953
69. ROME,		836,291

According to the old political division, the population is divided as follows:

iedmont and Liguria,	3,741,876
Island of Sardinia,	636,255
Lombardy,	3,171,803
Emilia,	2,276,762
The Marches,	915,443
Umbria,	549,833
Tuscany,	1,980,368
Neapolitan Provinces,	7,171,553
Sicily,	2,583,936
Venice,	2,931,953
Rome (States of the Church),	836,291
	26,796,073

The physical aspect presented by the surface of Italy is diversified in the extreme. Northern Italy is, for the most part, composed of one great plain—the basin of the Po, comprising all Lombardy and a considerable portion of Piedmont and Venice, bounded on the northwest and partly on the south by different alpine ranges. Throughout Central Italy, the great Apennine chain gives a picturesque irregularity to the physical configuration of the country, which in the southern extremity of Italy assumes still wilder forms. In the highland districts of Naples in which the Apennine ridge reaches its maximum elevation (10,000 feet), the scenery exhibits a savage grandeur. Along the extensive coast plains, as well as in the sub-Apennine valleys, the rural charms of this portion of Italy are extreme, while the brilliant flora and vegetation impart to it a novel character of beauty. The chief mountain system of Italy is the frontier ridge of the Alps, and their noble continuation, the Apennines.

Italy likewise comprises a considerable stretch of volcanic zone, which traverses the peninsula from the centre to the south in a line parallel with that of the Apennines, and of which the most remarkable active summits are Vesuvius, adjoining Naples, Ætna in Sicily, and Stromboli in the Lipari Isles.

The great plains of Italy are those of Lombardy, which stretch from the Mincio to the Ticino and the Po; of Piedmont; the Venetian plains; the plain of the Roman legations; the plain of the Campo Felice, on which stands Vesuvius; the Apulian plain; the long, narrow Neapolitan plain of the Basilicata, 100 miles in length, and 24 miles in breadth, stretching along the Gulf of Tarento.

The great majority of the rivers of Italy are only navigable for small coasting boats or barges. By far the most important is the Po, which rises on the borders of France, and flows into the Adriatic. It has numerous tributaries. Among the others may be mentioned the Adige, Brenta, Piave, Tagliamento, Aterno, Sangro, Metauro, Ofanto, Bradano, also belonging to the Adriatic basin; the Arno, the Tiber, the Ombrone, the Garigliano, and the Volturno, which belong to the Mediterranean basin.

The canal system of Italy is most extensive in the north. Nine principal canals in Lombardy administer to the irrigation of the plains and to the purposes of commercial communication, contributing in no small degree to the prosperity of the district. The Naviglio Grande or Ticinello is the finest hydraulic construction in Italy; it communicates between the Ticino and Milan, and has a course of 28 miles, navigable for vessels of large size. It was begun in 1179. The Naviglio Martesana, 38 miles long, unites Concesa on the Adea with Milan; the Naviglio di Pavia is 18 miles in length; the bifurcated Naviglio d'Ostiglia unites the Po with the Adige. 253 canals intersect Piedmont, extending over a length of 1932 kilometres. Venice comprises 203 navigable, and 40 minor canals. Numerous canals have been constructed for the drainage of the Pontine Marshes. This system of water communication was early carried to a high degree of efficiency in Italy, and is of incalculable service in the agricultural districts.

The mountain lakes of Italy are famed for their picturesque beauty. They are mostly in the northern provinces of Lombardy and Venetia. The principal are Maggiore, Lugano, Como, Iseo, and Garda. The Roman lakes of Perugia, Bolseno, and Braeciano, that of Castiglione in Tuscany, and Celano in Naples, also deserve mention.

The mineral and thermal springs of Italy are innumerable, and possess a great variety of curative and sanitary properties.

In the northern provinces, the climate is temperate, salubrious, and frequently severe in winter; in the eentre, it assumes a more genial and sunny character: while the heat of the southern extremity is almost of a tropieal intensity. The singular elearness of the atmosphere sets off the landscape and monumental beauties of Italy with brilliant effeet. The drawbacks of Italy's elimate are the piercing tramontana or mountain winds; the deadly sirocco, whieh blights all nature at seasons along the western coast; and the malaria or noxious miasmata which issues from the Maremma of Tuscany, the Pontine Marshes, and the Venetian lagoons, generating pestilential fevers and aguish diseases in the summer season. The mean temperature of the leading divisions of the eountry throughout a whole year was as follows: Milan, 55° 4′ of Fahrenheit's scale; Rome, 59°; Palermo, 62° 5′; and in Sardinia, 60° 5′. The highest temperature at Rome rises to 95°, and in Sicily from 97° to 104°.

The staple products of Italy are corn, wine, oil, raw silk, riee, olives, and fruits. Hemp, flax, and cotton are also largely grown. The sugar-cane is suceessfully eultivated in the two Sieilies. Agrieulture, exeept in the north, is in a very backward condition. It is ealculated that only two-thirds of the area of the kingdom eapable of produetion are cultivated, and that the rest lies waste. The superficial extent of the produetive soil of Italy is 23,017,096 ellaras,* divided thus:

	ELLARAS.
Arable land,	11,003,061
Meadow land,	1,173,436
Rice ground,	144,903
Olive plantations,	554,767
Chestnut plantations,	585,132
Woods and forests,	4,158,349
Pastures,	5,397,448
Total,	23,017,096

There are, besides, 3,997,059 ellaras of roek and marsh. Of the land capable of cultivation, more than half is devoted to the growth of eereals, mainly wheat. The average erop is insuffieient for the supply of the eountry. The wines of Naples are esteemed the best, small quantities of the famous *Lachrima Christi* and the *Vind d'Asti* being exported, while the Sicilian wines of Marsala form a eonsiderable item of export. The best oil and olives are furnished by Tuseany, Lucca, and Naples. Silk is chiefly manufactured in the northern provinces, the eultivation of the mulberry and the rearing of the silkworm forming, in Lombardy, a most important interest. The best manufactured silk comes from Piedmont, Tuscany, and the Roman provinees. The fruits of the two Sicilies are exquisite in flavor, and embraee several tropical species. Oranges, lemons, almonds, figs, dates, melons, and the pistachio nut, are eommon to all orchards, and are largely exported. A considerable eheese trade exists in the northern provinces.

The sea and fresh water fisheries of Italy are eonsiderable, the Mediterranean furnishing immense quantities of tunny, anehovies, sardines, mullets, pelchards, and mackerel. The export of anchovies and of sardines is of immense extent. The

* One ellara equals 2.47 acres.

river fisheries yield salmon, trout, sturgeon, lampreys, tench, barbel, etc. The crustaceans and shell fish of the Italian seas are of great variety and delicate flavor, and are a favorite article of Italian consumption.

The total exports of the kingdom, during the year 1874, were 1,304,994,328 lire;* the imports, during the same year, 985,458,532 lire.

The number and tonnage of merchant vesssls belonging to the kingdom, on January 1st, 1874, were as follows: 17,562 sailing vessels, aggregating 925,337 tons burthen; and 103 steamers, of a total burthen of 24,476 tons. Of the sailing vessels, 9074 were under 6 tons each.

According to the present constitution of Italy, the executive power belongs exclusively to the sovereign, and is exercised by him through responsible ministers. The legislative authority vests conjointly in the king and parliament, the latter consisting of two chambers, a Senate and a Chamber of Deputies. The Senate is composed of the princes of the royal house who are of age, and of an unlimited number of members, above forty years old, who are nominated by the king for life; a condition of the nomination being that the person should either fill a high office, or have acquired fame in science, literature, or any other pursuit tending to the benefit of the nation: or, finally, should pay taxes to the annual amount of 3000 lire. The members of the Chamber of Deputies are elected by a majority of all citizens who are twenty-five years of age and pay taxes to the amount of 40 lire. A deputy must be thirty years old, and must have the requisites demanded by the electoral law, among them a slight property qualification. Neither senators nor deputies receive any salary.

The following are the budget estimates for 1875:

Estimated revenue,	1,344,164,158 lire.
Estimated expenditures,	1,575,487,190 "

The entire public debt, at the end of 1873, was 9,757,613,267 lire.

The actual strength of the army, at the end of December, 1873, was:

Number of men under arms (peace footing),	199,557
Number of men on unlimited furlough,	244,952
Total (war footing),	444,509

The navy, at the commencement of 1875, consisted of 95 ships of war, carrying 1256 guns. Of these, 9 were ironclads, carrying 346 guns, 46 were screw steamers, carrying 693 guns, and 32 paddle steamers, carrying 113 guns.

The total length of railways opened for traffic, at the end of 1874, was 4607 English miles.

The number of post offices at the commencement of 1874 was 2709. In the year 1873 the post office carried 504,402,431 letters and 94,402,596 printed parcels.

The length of telegraphic lines, on the 1st of January, 1874, was 12,622 English miles, nearly two-thirds of the whole belonging to the government. There were, at the same date, 1408 telegraphic offices. The number of private telegrams during 1873 was 4,670,090, and of official telegrams, 163,852.

Under the new Italian government, a great part of the property confiscated from the monastic establishments has been devoted to the cause of public education. In addition to this, the Parliament votes an annual credit of 15,000,000 lire for the same purpose. Since the commencement of the year 1860 there were opened throughout the kingdom thirty-three model schools. Notwithstanding these important aids to instruction, education still stands very low. According to the census of 1864, out of a total population of 21,703,710 souls, there were about 17,000,000 who could neither read nor write. Piedmont occupied the first place, Sicily the last, on the register of knowledge. In the Basilicata, Calabria, and Sicily, more than nine-tenths of the population could neither read nor write.

* One lire equals 19.3 cents gold.

There are twenty-two universities in Italy, many of them of ancient foundation. By a decree of the Minister of Public Instruction, issued in 1871, six high-schools—Naples, Pavia, Turin, Bologna, Florence, and Parma—were declared first-class universities of the kingdom. The number of students at all the universities was returned as 10,524 in 1871.

Commission from ITALY to the International Exhibition:

H. E. BARON BLANC, Minister Plenipotentiary.
COUNT B. LITTA, First Secretary of Legation.
CHEVALIER ALONZO M. VITI, Vice-Consul.
ANGELO M. GIANELLI, Agent of the Central Committee of Florence.

ITALY.

(North of Nave, Columns 1 to 5.)

Mining and Metallurgy.

Minerals, Ores, Stone, Mining Products.

1 Tagliavia, Francesco, & Co., Messina.—Collection of minerals. 100
2 Fontana Brothers, Luserna, Turin.—Flagstones. 102
3 Tassi, Peter, Leghorn.—Yellow marble and alabaster. 102
4 Chamber of Commerce and Arts, Sienna.—Marble and alabaster stone. 102
5 Stock Company for Manufacturing Bricks, Reggio, Emilia.—Cement, limestone. 103
6 Crispo, Monceada Carlo, Catania.—Limestone. 103
7 Maccagnani, Ulisse, Bologna.—Aromatic earth of Cattu. 104
8 Bolari and Yellow Earth Co., Sienna.—Bolari and yellow earth, earth for coloring. 104
9 Furse, Drottey, & Co., Rome.—Bolari earth of Sienna. 104
10 Molfini, Luigi, Genoa.—Lithographic stone. 106
11 Scammano Cav. Michele, Catania.—Cedrats 107
12 Birindelli, Carlo, Florence.—Colalli water. 107
13 Spedalieri, Ba Felice, Catania.—Sulphur. 107
14 Count Aristide, Castrocaro.—Mineral waters. 107
15 Romano, Gaetano, Palermo.—Sulphur. 107
16 Scavo Vita Brothers, Catania.—Sulphur. 107
17 Dily, Edoardo, Catania.—Sulphur. 107
18 Ardizzone, Francesco, Catania.—Sulphur. 107
19 Pennini, Baron of Floristallo, Catania.—Sulphur. 107
20 Cesena Sulphur Co. (limited), Cesena.—Raw and refined sulphur. 107
21 Bartolini dott Cesare, Sienna.—Fossil flour. 107

Metallurgical Products.

22 Fornara, Gio., & Co., Turin.—Wire. 111
23 Ponsard & Gigli, Florence.—Iron, manganese. 111

BRAZIL.—STATISTICAL PREFACE.

BRAZIL is the most extensive state of South America. Towards the interior, it borders on all the other states of that continent except Chili and Buenos Ayres—on Uruguay, the Argentine Confederation, Paraguay, Bolivia, Peru, Ecuador, New Granada, Venezuela, and English, Dutch, and French Guiana; while its seaboard, beginning about 200 miles to the north of the Amazon, and reaching to within the same distance of the Plata, projects into the Atlantic fully 1000 miles to the east of the direct line between its two extremes. This immense country extends between latitude 4° 30′ north and 33° south, and between longitude 35° and 70° west, being, in round numbers, 2600 miles long and 2500 broad. The area, according to official accounts, is 3,100,000 square miles, with a population, in 1872, of 10,196,328 including 1,683,684 slaves, and consisting of aboriginals, Africans, and Europeans, the first being proportionately fewer than in most parts of America.

Brazil differs in many respects from most of the other divisions of the new continent. It knows nothing of the volcanoes and earthquakes of the Pacific coast; with winds blowing constantly from the Atlantic Ocean, it is exempted from those droughts which are always blighting one or other of the slopes of the Andes, the remoter slope in Peru and Chili, and the nearer in Buenos Ayres and Patagonia; its mines, again, are as famous for gold and diamonds as those of the western Cordilleras for silver. In its hydrography, Brazil contrasts unfavorably with the other divisions. While the Amazon and the Plata, the Mississippi and the St. Lawrence—not to mention countless rivers of inferior magnitude on both shores—are for the most part practicable almost to their sources, the streams of Brazil, with the exception of the Amazon, are mostly impeded throughout by cataracts and shallows, thus counterbalancing, as it were, its matchless seaward facilities by the deficiencies of its inland communications. Further, the most navigable of these streams, instead of entering the open sea, mingle their waters with those of the Plata or of the Amazon—the Parana and the Uruguay joining the former, and the Madeira, the Tapojos, the Zingu, and the Tocantins, the latter; and even among those that do send their tribute at once to the ocean, a similar direction is sometimes impressed by the dividing ridges—the San Francisco, for instance, by far the largest of them, running to the northward parallel with the southeast coast through 11° of latitude, and leaving only 4° of longitude for its remaining course to the Atlantic. These hydrographic peculiarities must be the more strongly felt, inasmuch as a humid surface and a luxuriant vegetation conspire to render ordinary roads all but impossible.

Among the mineral treasures, besides gold and diamonds, already mentioned, iron of superior quality is abundant; and salt, also, is extensively produced in saline marshes by the alternate processes, according to the season, of inundation and evaporation. The productions of the soil are, of course, equally various and rich. The cotton is naturally excellent, and the tea-plant of China has been introduced, though hitherto with indifferent success. The exports necessarily vary in different sections of the country. From the north, they are coffee, cotton, cocoa, sugar, and tobacco; from the south, hides, tallow, horns, etc.; and from the middle, drugs, diamonds, gold dust, dyes, rice, manioc, tapioca, spirits, and rosewood.

The total value of the imports into Brazil, including bullion and specie, averaged about $91,000,000 in the five years, 1869–1873, and that of the exports during the same period, likewise including bullion and speeie, about $110,000,000.

The executive authority is vested in the Emperor, who, besides being aided by a council of state, must act through responsible ministers. The legislature consists of two chambers, which sit four months every year. Both the deputies and the senators, who must have annual incomes respectively of 800 milrees and 1600, are indireetly eleeted by voters who must possess 200 milrees per annum—the former for four years, and the latter for life. The senate, however, appears to represent the crown as well as the people, inasmueh as eaeh eonstituency merely nominates three individuals for his majesty's ehoice of one. Justices of the peace, also, are appointed by the respective eommunities; and in the courts generally, whether civil or criminal, there prevails trial by jury.

The budget for the year ending June 30th, 1876, ealeulates the reeeipts at 107,133,070 milrees, and the expenditures at 102,634,053 milrees.* The public debt, on the 1st of April, 1875, was, including paper money, 664,739,395 milrees.

In a vote passed by the House of Congress, June, 1869, the strength of the standing army was fixed at 30,000 on the peace footing, and at 60,000 on the war footing. There were aetually under arms, aecording to official reports, at the end of April, 1874, 28,933 troops, of whieh number 2397 were in garrison in Paraguay.

The imperial navy eonsisted, in 1875, of 61 men-of-war, carrying 230 guns, and crews aggregating 4136.

The empire possessed, at the end of 1873, railways of a total length of 714 English miles, open for traffie. There were railways of an aggregate length of 397 miles in course of construction at the end of June, 1874. There were, at the beginning of the year 1874, telegraph lines to the extent of 3375 miles. The number of offiees was 74 at the same date. The post office carried 12,251,000 letters in the year 1873, of whieh number 6,548,000 eame from or to Rio de Janeiro, the eapital.

Commission from BRAZIL to the International Exhibition:

HIS HIGHNESS, GASTON D'ORLEANS, Conde d' Eu, Marshal of the Army, President.
VISCOUNT DE JAGUARY, 1st Vice-President.
VISCOUNT DE BONN-RETIRO, 2d Vice-President.
HIS EXCELLENCY, A. P. DE CARVALHO BORGES, Envoy Extraordinary and Minister Plenipotentiary of His Majesty the Emperor of Brazil.
VISCOUNT DE SOUZA FRANCO.
JOAQUIN ANTONIO DE AZEVEDO.

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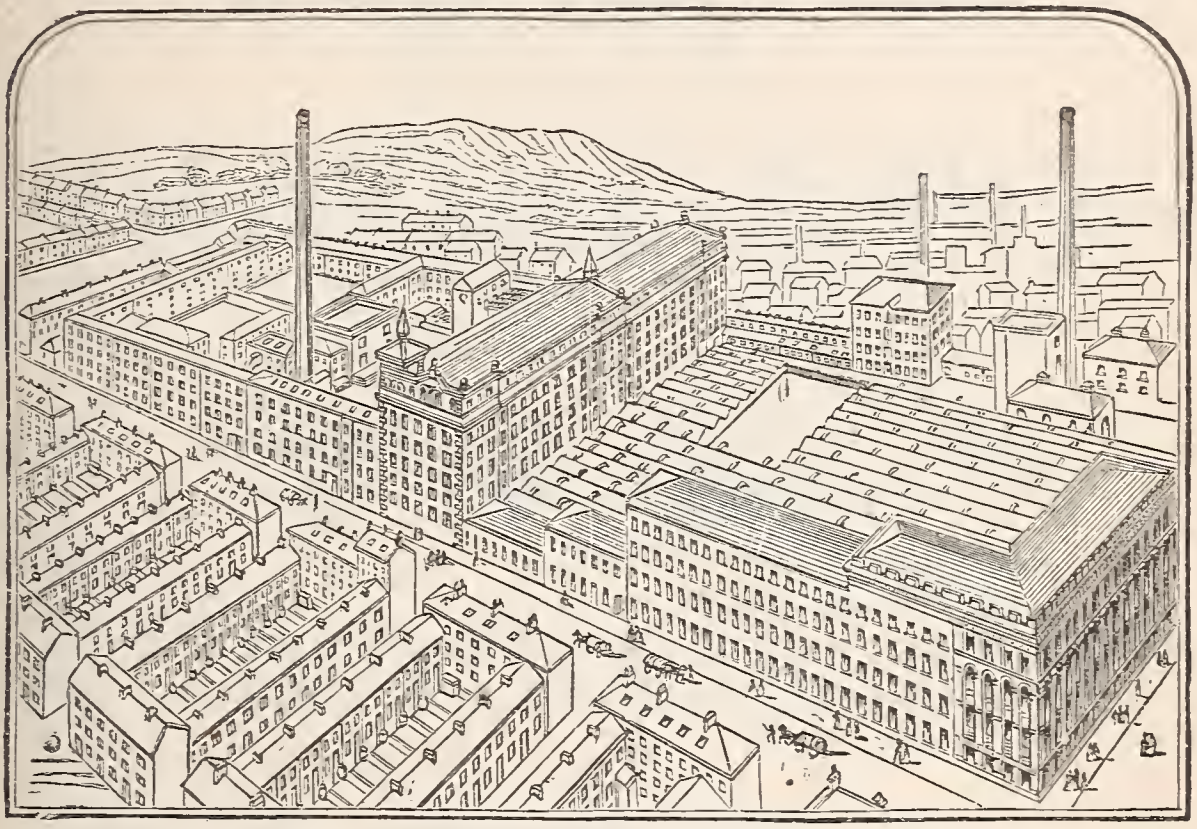
* The milrees = 1000 reis.

PURE IRISH LINENS.



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FLAX SPINNERS, POWER-LOOM WEAVERS, BLEACHERS & MERCHANTS,

MANUFACTURERS OF

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MANUFACTURES.

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Viennese Dress Linen,
Grenadines,
Printed Lawns.

CLOTHING.

Brown Diagonal Drills, *Plain*,
Brown Diagonal Drills, *Fancy Stripe*,
Brown Diagonal Tweeds,
Bleached Drills and Ducks,
Brown Ducks and Duck Coatings,
Canvas & French Elastic Ducks,
Pale Hollands,
Blay Linens.

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Medium Family Linens,
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Sheetings,
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MANCHESTER	12, Piccadilly.

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MANUFACTURERS OF

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AND

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Writing Papers

OF EVERY DESCRIPTION.

BRAZIL.

(North of Nave, Columns 58 to 61.)

Minerals, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

Metallurgical Products.

ARGENTINE REPUBLIC.—STATISTICAL PREFACE.

THE Argentine Republic—the confederation of the Rio de la Plata, or River of Silver, South America—is a federal union of fourteen provinces and three large territories, covering an almost unbroken plain of 1,200,000 square miles, with a population of about 2,000,000 inhabitants. It extends from 22° south latitude to the straits of Magellan, and from 59° west longitude to the Andes.

Each province has its own legislature, courts of justice, and political government; but civil, penal, and commercial laws are common to all the provinces, codes of such laws having been issued by the congress of the confederation.

The President of the republic is elected for a term of six years by the representatives of the provinces, and is not eligible for re-election. The Vice-president, elected in the same manner, fills the office of chairman of the Senate, but has otherwise no political power. The President is commander-in-chief of the troops, and appoints to all civil, military, and judicial offices; but he and his ministers are responsible for

their acts, and liable to impeachment before the Senate by accusation of the House of Representatives. Legislative power is vested in a Senate, of members elected by the provincial legislatures, two from each province, and a House of Representatives, elected by the people, and apportioned to each province according to population. The senators hold their office for nine years, and the representatives for three.

The chief exports of the country are wool, hides, salt beef, and tallow; but its resources embrace all the products of the tropical and temperate zones, as may be seen by the catalogue of its exhibits.

The farming stock of the republic is estimated at 15,000,000 horned cattle, 4,000,000 horses, and 80,000,000 sheep, whose aggregate value cannot fall short of $200,000,000, gold, yielding about $50,000,000 of export produce per annum.

The total trade may be estimated at $100,000,000 per annum. In 1874 the imports amounted to $55,961,117, against over $71,000,000 in the previous year. The exports amounted to $43,104,712, against $45,869,314 in 1873. The decrease in imports and exports was caused by a severe commercial crisis, from which the country is just recovering.

The annual revenue amounted to $20,217,231 in 1873, but the crisis reduced it in 1874 to $16,090,661, or over $2,000,000 less than in 1872, and nearly $4,500,000 less than in 1873. The general expenditures in 1874 reached the sum of $28,596,006. The total debt in January, 1875, was $68,416,043.

The regular army numbers 10,807 men, divided as follows: cavalry 4800, infantry 4400, artillery 400, and 1173 special troops. The navy is composed of 26 vessels, among them 2 ironclads and 6 gunboats, with crews amounting in all to 900.

The capital of the republic is provisionally situated at the city of Buenos Ayres, capital of the province of the same name.

(The statistics given above have been furnished by the commission of the Argentine Republic.)

A network of railways, constructed mainly at the expense of the State, has been in progress for several years. At the end of the year 1873 there were 664 miles open for traffic, and 642 miles of State railways in course of construction. There were besides, at the end of 1873, railways of a total length of 1997 miles, sanctioned by the government, including an international line from Buenos Ayres to Chili, of 894 miles.

At the end of September, 1873, there were 4170 miles of telegraph lines in operation. The total length of telegraph wires at the same date was 8267 miles. The number of telegraphic dispatches during the same year was 170,079.

The post office, in the year 1873, carried 1,493,700 parcels and packets, and 4,574,188 letters. The number of letters carried doubled in the five years from 1869 to 1873.

Commission from the ARGENTINE REPUBLIC to the International Exhibition:

CARLOS CARRANZA, President.
EDWARD SHIPPEN, Vice-President.
EDW. T. DAVISON, Treasurer, Consul-General.
DIEGO DE CASTRO, Secretary.
E. MARA DAVISON, Deputy Member.

Central Committee.

ERNESTO OLLENDORF, President.
JULIO VICTORICA, Secretary.

EDUARDO OLIVERA,
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LINO PALCOIS,
RICARDO NEWTON,
LEONARDO PEREYRA,
JOSE M. JURAFDO,
EMILIO DUPORTAL.

ARGENTINE REPUBLIC.

(Nave to South Avenue, Columns 2 to 5.)

Minerals, Ores, Stone.

Minerals, Ores, Stone, Mining Products.

1 Raymond, Hipolito, Province of Mendoza.—Collection of minerals. 100

2 Provincial Commission, Province of Mendoza.—Collection of minerals. 100

3 Lemos, Abraham, Province of Mendoza.—Minerals for paints. 100

4 Treloar, Guillermo A., Province of La Rioja.—Collection of minerals. 100

5 Almonacid & Parchappe, Province of La Rioja.—Collection of minerals. 100

6 Illanes, Manuel J., Province of La Rioja.—Minerals of Cerro de Vinchina. 100

7 Bas-cuñan, Francisco, Province of La Rioja.—Minerals. 100

8 Provincial Commission, Province of La Rioja.—Minerals. 100

9 Gelos, Martin, Province of La Rioja.—Minerals of Olta. 100

10 Vega, Daniel de la, Province of La Rioja.—A petrifaction. 100

11 Schröder, Teodoro, Province of La Rioja.—Copper ore. 100

12 Gifford, S., Province of La Rioja.—Silver ore. 100

13 Aguilar, Francisco D., Province of San Juan.
- *a* Minerals. 100
- *b* Mineral waters. 107

14 Government of the Province of San Juan.—Collection of minerals. 100

15 Provincial Commission, Province of San Luis.—Collection of minerals. 100

16 Metzler, A., Province of Catamarca.—Minerals. 100

17 Romay, Gabriel, Province of Catamarca.—Iron and antimony ores. 100

18 Provincial Sub-commission of Tinogasta, Province of Catamarca.—Ores of iron, lead, copper, silver, etc. 100

19 Galindez, Clásico, Province of Catamarca.—Silver ore. 100

20 Villafañe, Tristan, Province of Catamarca.—Silver-bearing galena. 100

21 Rescagli, Luis, Province of Corrientes.—Quartz, flint, agate, etc. 100

22 Mansilla, Manuel, Province of Corrientes.—Quartz and agate. 100

23 Galarraga, E. G. de, Province of Corrientes.—Crystal rock. 100

24 Sicard, Juana G. de, Province of Corrientes.—Horn-shaped stone. 100

25 Porta, Felix, Province of Corrientes.—Agglomeration of small stones. 100

26 Acosta de Quirolo, Iosefa, Province of Corrientes.—Crystal rock. 100

27 Cuña, Americo, Province of Corrientes.—Agate. 100

28 Cabral y Melo, José Maria, Province of Corrientes.—Crystal rock and flint. 100

29 Pujol, Nicanor, Province of Corrientes.—Iron ore. 100

30 Córdoba University, Province of Córdoba.—Collection of minerals. 100

31 Fragneiro, José M., Province of Córdoba.—Lead containing silver. 100

32 Provincial Commission, Province of Córdoba.
- *a* Lead containing silver, gypsum, various minerals. 100
- *b* Marble. 102
- *c* Whetstones. 106

33 Vasquez, Lucrecio, Province of Córdoba.—Emeralds; round-shaped stone made by Indians. 100

34 MacDowell, N., Province of Córdoba.—Minerals. 100

35 Olmos, José V., Province of Córdoba.—Minerals. 100

36 Provincial Commission, Province of Salta.
- *a* Galena, silver, iron. 100
- *b* Sulphate of lime. 103
- *c* Kaolin. 104

37 Echevarria, Cecillo, Province of Santa Fé.—Minerals; quartz and agates of Alto Uruguay. 100

38 Rap, Eugenio, Province of Tucuman.—Collection of minerals. 100

39 Government of the Province of Jujuy.—Silver ore from Tilcará. 100

40 Sub-commission of the Department of Diamante, Province of Entre-Rios.—Stones found on the shores of the Plata y Uruguay. 100

41 Arguello, David, Province of Córdoba.
- *a* Silver ore. 100
- *b* Anthracite coal. 101

42 Galvan, Federico, Province of La Rioja.—Coal from Tumbillos. 101

43 Roman, Gabriel, Province of Catamarca.—Coal. 101

44 Valdes, Emiliano, & Cipriano, Province of Buenos Ayres.—Colored and other stones from Tandil. 102

45 Olmos, José V., Province of Córdoba.—White marble. 102

46 Salas, Manuel M., Province of Corrientes.—Marble and crystallized stones. 102

47 De los Santos, Francisco A., Province of Corrientes.—Hollow unpolished stone. 102

Minerals, Stone, Artificial Stone.

48 Huriey, Tomás, Province of Catamarca.—Granites; copper and black bronzes; antique pieces of stone discovered in the abandoned mine of Ortiz. 102

49 Diaz, Eulogio, Province of Corrientes.—Rough stone. 102

50 Provincial Commission, Province of Santiago del Estero.—Dressed stones from the Sierra de Guasayan. 102

51 Provincial Commission, Province de San Juan.—Building stone. 102

52 Provincial Commission, Province of San Luis.—Stone pestle used by the Indians to grind corn and other grains; stone pan made by Indians, etc. 102

53 Segura, Rufino, Province of Catamarca.—Soapstone, flagstone. 102

54 Provincial Commission, Province of Catamarca.—Soapstone from Ancasti. 102

55 Sub-commission of Andalgalá, Province of Catamarca.—Soapstone from Belen. 102

56 Riso, Isidoro, Province of Catamarca.—Soapstone. 102

57 Herrera, Nicolas, Province of Catamarca.—Slate. 102

58 Cornejo, Melchora, Province of Salta.—Carbonate of lime. 103

59 Saravia, Pablo, Province of Salta.—Sulphate of lime. 103

60 Fornasari, R., & Facino, H., Province of Entre-Rios.—Hydraulic cement, artificial stones. 103

61 Commission of Parana, Province of Entre-Rios.—Paving-stones, limestones, lime, sulphate of lime, petrified oyster-shells, etc. 103

62 Garlive, N., Province of Entre-Rios.—Artificial stone. 103

63 Peretti, Santiago, Province of Salta.—Dressed stone and carbonate of lime. 103

64 Sub-commission of the Department of Diamente, Province of Entre-Rios.—Hydraulic cement stones and cement, lime, artificial stone, petrified wood, etc. 103

65 Solá, Ramon, Province of Entre-Rios.—Gypsum. 103

66 Justice of the Peace of Ensenada, Province of Buenos Ayres.—Lime shells. 103

67 Pedruncini, Juan, Province of Buenos Ayres.—Shell-lime. 103

68 Valdes, Nicasio, Province of Buenos Ayres.
- *a* Lime from Balcarce. 103
- *b* Red clay. 104

69 Iñiguez, Manuel A., Province of Buenos Ayres.—Limestone from Tandil. 103

70 Commission of Aguas Corrientes, Provnice of Buenos Ayres.
- *a* Lime-shells, calcareous stones, raw and burnt cement, cement in shape of bricks. 103
- *b* Clay. 104

71 Welsh, Miguel, Province of Buenos Ayres.—Limestone, quicklime, slaked lime. 103

72 Caetani, Vicente, Province of Buenos Ayres.—Artificial marble. 103

73 Sandrot, José, Province of Buenos Ayres.—Artificial stones. 103

74 Justice of the Peace of Patagones, Province of Buenos Ayres.—Gypsum, etc. 103

75 Riso, Isidoro, Province of Catamarca.—Water-lime. 103

76 Provincial Commission, Province of Catamarca.
- *a* Water-lime, gypsum. 103
- *b* Colored clay, soapstone in powder, kaolin, etc. 104
- *c* Mineral waters. 107

77 Ibañez, P., Province of Catamarca.—Stalagmitical lime. 103

78 Gelos, Martin, Province of La Rioja.—Calcinated lime, gypsum. 103

79 Provincial Commission, Province of La Rioja.—Lime; common gypsum. 103

80 Provincial Commission, Province of Tucuman.
- *a* Black, yellow, and white limestone, common gypsum. 103
- *b* White clay. 104

81 Paroni, Andrés, Province of Santa Fé.—Hydraulic cement. 103

82 Provincial Commission, Province of Corrientes.—Calcareous stones from Itati. 103

83 Aguilar, Francisco D., Province of San Juan.—Hydraulic lime. 103

84 Provincial Commission, Province of Santiago del Estero.
- *a* Crystallized and common gypsum. 103
- *b* Colored clay and saltpetre. 104
- *c* Mineral and sarsaparilla waters. 107

85 Tamayo, Sidney, Province of Salta.—White clay. 104

86 Carenzo, Nicholas, Province of Salta.—Kaolin, white clay, and chalk. 104

87 Arias, Hilarion, Province of Salta.—Sulphate of lime. 104

88 Lopez, Feliciano, Province of Corrientes.—Clay for the manufacture of crockery, tiles, and bricks, yellow stone for coloring and paint. 104

89 Sub-commission of Bella Vista, Province of Corrientes.—Stone containing red and yellow coloring substances; clays. 104

90 Commission of the Department of Paraná, Province of Entre-Rios.—Clay, fine sand, Tripoli, calcareous clay containing gold and silver, etc. 104

91 Calderon, Pedro, Province of Entre-Rios.—Vegetable clay. 104

92 Fontes, V. M., & Negra, S., Province of Entre-Rios.—Clay for whitewashing. 104

93 Bazan, Abel, Province of La Rioja.—Refractory bricks. 104

94 Gelos, Martin, Province of La Rioja.
- *a* Chalk. 104
- *b* Whetstones of "La Torre" in their natural state; flint. 106

95 Barros, José, Province of La Rioja.—Refractory bricks. 104

96 Valdes, Emiliano & Cipriano, Province of Buenos Ayres.
- *a* Black and white vegetable clay from Balcarce. 104
- *b* Sand and whetstones. 106

97 Justice of the Peace of Zarate, Province of Buenos Ayres.—Black and ferruginous clays. 104

Minerals, Stone, Metallurgical Products.

98 Lobo, Tristan, Province of Catamarca.—Chalk clay, tiles, and bricks. 104

99 Quevedo, Samuel A., Lafone, Province of Catamarca.—White clay for bricks; hard fossil-ground quartz; refractory bricks. 104

100 Provincial Commission, Province of La Rioja.—White chalk and specimens of colored clay used in the manufacture of pottery and paints; colored chalk. 104

101 Caballero, Eugenio, Province of Salta.—Graphite. 105

102 Medina, Luis R., Province of Catamarca.—Whetstones of "La Conception." 106

103 Perez, Luisa, Province of La Rioja.—Mineral water. 107

104 Cornejo, F. de, Melchora, Province of Salta.—Mineral waters. 107

105 Patron Bros., Province of Salta.—Mineral waters. 107

106 Schmidt, Antonio, Province of San Luis.—Mineral waters. 107

107 Escobar, Juan de D., Province of San Luis.—White-stone water. 107

108 Sub-commission of the Colony of San Carlos, Province of Santa Fé.—Vegetable clay. 107

109 Otamendi, Carlos, Province of Buenos Ayres.—Shells from the coast of Balcarce. 107

Metallurgical Products.

110 Zorilla, Benjamin, Province of Salta.—Silver. 110

111 Bedoya, Segundo, Province of Salta.—Silver. 110

112 Molina & Carranza, Province of Catamarca.—Metals from the Rosario mine. 110

113 Nell, Federico, Province of San Luis.—Gold and washed gold. 110

114 Bertram & Co., Province of San Luis.—Gold from the Descubridora mine. 110

115 Provincial Commission, Province of San Luis.—Gold from La Carolina mine. 110

116 Salcedo, Uladislao M., Province of Catamarca.
a Silver. 110
b Copper. 112

117 Quevedo, Samuel Lafone, Province of Catamarca.—Alum, copper, calcined copper axle. 111

118 Muro, Froilan, Province of Catamarca.—Iron, copperas, alum, and sulphate of copper. 111

119 Mansilla, M. T., Province of Corrientes.—Copper and mica. 112

120 Tula, Nabor, Province of Catamarca.—Copper. 112

121 Galindez, Clásico, Province of Catamarca.—Copper and silver. 112

CLASSIFICATION.

DEPARTMENT II.—MANUFACTURES.

CHEMICALS.

CLASS 200.—Chemicals, pharmaceutical preparations.

Mineral acids, and the methods of manufacture. Sulphuric, nitric, and hydrochloric acids.

The common commercial alkalies, potash, soda, and ammonia, with their carbonates.

Salt and its production. Salt from deposits—native salt. Salt by solar evaporation from sea water. Salt by evaporation from water of saline springs or wells. Rock salt. Ground and table salt.

Bleaching powders and chloride of lime.

Yeast powders, baking powders.

CLASS 201.—Oils, soaps, candles, illuminating and other gases.

Oils from mineral, animal, and vegetable sources. Refined petroleum, benzine, naphtha, and other products of the manufacture. Oils from various seeds, refined, and of various degrees of purity. Olive oil, cottonseed oil, palm oil. Animal oils, of various kinds, in their refined state. Oils prepared for special purposes besides lighting and for food. Lubricating oils.

Soaps and detergent preparations.

Candles, stearine, glycerine, paraffine, etc., spermaceti.

Illuminating gas and its manufacture.

Oxygen gas, and its application for heating, lighting, metallurgy, and as a remedial agent.

Chlorine and carbonic acid.

CLASS 202.—Paints, pigments, dyes, colors, turpentine, varnishes, printing inks, writing inks, blacking.

CLASS 203.—Flavoring extracts, essences, perfumery, pomades, cosmetics.

CLASS 204.—Explosive and fulminating compounds; in small quantities only, and under special regulations, shown in the building only by empty cases and cartridges. Black powder of various grades and sizes. Nitroglycerine and the methods of using and exploding. Giant powder, dynamite, dualin, tri-nitroglycerine.

CLASS 205.—Pyrotechnics, for display, signaling, missiles.

CERAMICS—POTTERY, PORCELAIN, ETC.

CLASS 206.—Bricks, drain-tiles, terra cotta, and architectural pottery.

CLASS 207.—Fire clay goods, crucibles, pots, furnaces. Chemical stoneware.

CLASS 208.—Tiles, plain, enameled, encaustic; geometric tiles and mosaics. Tiles for pavements and for roofing, etc.

CLASS 209.—Porcelain for purposes of construction. Hardware trimmings, etc.

CLASS 210.—Stone china, for chemists, druggists, etc., earthenware, stoneware, faience, etc.

CLASS 211.—Majolica and Palissy ware.

CLASS 212.—Biscuit-ware, parian, etc.

CLASS 213.—Porcelain for table and toilet use, and for decoration.

GLASS AND GLASSWARE.

CLASS 214.—Glass used in construction and for mirrors. Window glass of various grades of quality and of size. Plate glass, rough, and ground or polished. Toughened glass.

CLASS 215.—Chemical and pharmaceutical glassware, vials, bottles.

CLASS 216.—Decorative glassware.

FURNITURE AND OBJECTS OF GENERAL USE IN CONSTRUCTION AND IN DWELLINGS.

CLASS 217.—Heavy furniture.—Chairs, tables, parlor and chamber suits, office and library furniture, vestibule furniture. Church furniture and decoration.

CLASS 218.—Table furniture.—Glass, china, silver, silver-plate, tea and coffee sets, urns, samovars, epergnes.

CLASS 219.—Mirrors, stained and enameled glass, cut and engraved window-glass, and other decorative objects.

CLASS 220.—Gilt cornices, brackets, picture frames, etc.

CLASS 221.—The nursery and its accessories; children's chairs, walking chairs.

CLASS 222.—Apparatus and fixtures for heating and cooking,—stoves, ranges, heaters, etc.

CLASS 223.—Apparatus for lighting,—gas fixtures, lamps, etc.

CLASS 224.—Kitchen and pantry,—utensils, tinware, and apparatus used in cooking (exclusive of cutlery).

CLASS 225.—Laundry appliances, washing machines, mangles, clothes-wringers, clothes-bars, ironing-tables.

CLASS 226.—Bath-room and water closet, shower bath, earth closet.

CLASS 227.—Manufactured parts of buildings,—sash, blinds, mantels, metal work, etc.

YARNS AND WOVEN GOODS OF VEGETABLE OR MINERAL MATERIALS.

CLASS 228.—Woven fabrics of mineral origin.—Wire cloths, sieve cloth, wire screens, bolting cloth.

Asbestos fibre, spun and woven, with the clothing manufactured from it.

Glass thread, floss, and fabrics.

CLASS 229.—Coarse fibres, of grass, rattan, cocoanut, and bark.

Matting, Chinese, Japanese, palm-leaf, grass, and rushes.

Floor cloths of rattan and cocoanut fibres, aloe fibre, etc.

CLASS 230.—Cotton yarns and fabrics, bleached and unbleached.

Cotton sheeting and shirting, plain and twilled.

Cotton canvas and duck. Awnings, tents.

CLASS 231.—Dyed cotton fabrics, exclusive of prints and calicoes.

CLASS 232.—Cotton prints and calicoes, including handkerchiefs, scarfs, etc.

CLASS 233.—Linen and other vegetable fabrics, uncolored or dyed.

CLASS 234.—Floor oil cloths, and other painted and enameled tissues, and imitation of leather, with a woven base.

WOVEN AND FELTED GOODS OF WOOL AND MIXTURES OF WOOL.

CLASS 235.—Card wool fabrics.—Yarns, broadcloth, doeskins, fancy cassimeres. Felted goods.

CLASS 236.—Flannels.—Plain flannels, domets, opera and fancy.

TWENTY-EIGHTH ANNUAL REPORT OF

THE PENN MUTUAL LIFE INSURANCE CO.

OFFICE, 921 CHESTNUT STREET, PHILADELPHIA.

ASSETS, JAN. 1st, 1876.

United States bonds, Philadelphia and other stocks and loans,	$1,770,477 50
Mortgages and ground rents upon property appraised at $5,334,200, all first liens.	1,197,308 84
Real estate owned by Co..	349,186 53
Premium notes and loans secured by collateral,	853,610 13
Cash on hand and in trust companies,	191,916 62
Scrip dividends held by Co.,	113,030 00
Balance in hand of agents,	17,953 48
All other securities,	236,846 14
	$5,504,329 24

LIABILITIES.

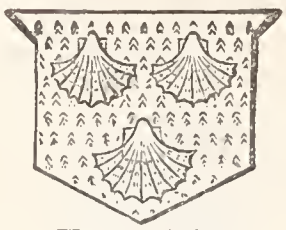
Losses reported, but not yet due,	$90,920 00	
Reserve at 4 per cent interest, required to insure outstanding risks,	4,553,118 00	
Scrip yet outstanding,	113,030 00	
		4,756,438 00
Surplus to policy holders, 4 per cent. basis,		747,891 24
Surplus to policy holders, 4½ per cent. basis,		1,083,091 24
Total number of policies issued in 1875,		2,093
Policies in force Jan. 1, 1876,		9,545
Amount at risk,		$28,389,363 00

SAMUEL C. HUEY, President,
H. S. STEPHENS, Second Vice-President.
HENRY AUSTIE, Secretary.

SAMUEL E. STOKES, Vice-President.
JAMES WEIR MASON, Actuary.

Vienna Universal

Exhibition.



Trade Mark.

Medal for Merit,

1873.

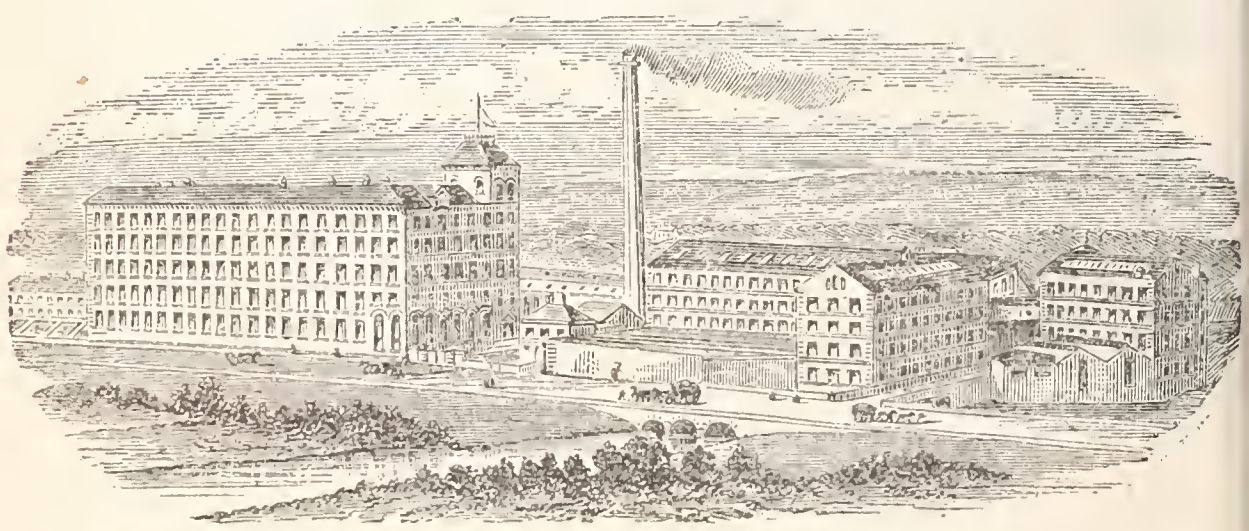
JOHN DEWHURST & SONS,

Cotton Spinners,

AND MANUFACTURERS OF

SEWING COTTON,

Remarkable for its strength, pliability, evenness, and freedom from knots. It meets all the requirements of the different kinds of Sewing Machines, and is equally suitable for hand use.



JOHN DEWHURST & SONS,

BELLE-VUE MILLS,

SKIPTON, YORKSHIRE

COTTON SPINNERS FROM A.D. 1794.

SEWING COTTON MANUFACTURERS FROM A.D. 1870.

AGENTS IN THE UNITED STATES,

MESSRS. WILSON & MERRILL, BOSTON.

CLASS 237.—Blankets, robes, and shawls.

CLASS 238.—Combined wool fabrics.—Worsteds, yarns, dress goods for women's wear, delaines, serges, poplins, merinoes.

CLASS 239.—Carpets, rugs, etc.—Brussels, melton, tapestry, tapestry Brussels, Axminster, Venetian, ingrain, felted carpetings, druggets, rugs, etc.

CLASS 240.—Hair, alpaca, goat's hair, camel's hair, and other fabrics, mixed or unmixed with wool.

CLASS 241.—Printed and embossed woolen cloths, table covers, patent velvets.

SILK AND SILK FABRICS, AND MIXTURES IN WHICH SILK IS THE PREDOMINATING MATERIAL.

CLASS 242.—Cocoons and raw silk as reeled from the cocoon, thrown or twisted silks in the gum.

CLASS 243.—Thrown or twisted silks, boiled off or dyed, in hanks, skeins, or on spools.

CLASS 244.—Spun silk yarns and fabrics, and the materials from which they are made.

CLASS 245.—Plain woven silks, lutestrings, sarsnets, satins, serges, foulards, tissues for hat and millinery purposes, etc.

CLASS 246.—Figured silk piece goods, woven or printed. Upholstery silks, etc.

CLASS 247.—Crapes, velvets, gauzes, cravats, handkerchiefs, hosiery, knit goods, laces, scarfs, ties, veils, all descriptions of cut and made up silks.

CLASS 248.—Ribbons, plain, fancy, and velvet.

CLASS 249.—Bindings, braids, cords, galloons, ladies' dress trimmings, upholsterers', tailors', military, and miscellaneous trimmings.

CLOTHING, JEWELRY, AND ORNAMENTS, TRAVELING EQUIPMENTS.

CLASS 250.—Ready-made clothing, knit goods and hosiery, military clothing, church vestments, costumes, waterproof clothing, and clothing for special objects.

CLASS 251.—Hats, caps, boots and shoes, gloves, mittens, etc., straw and palm leaf hats, bonnets, and millinery.

CLASS 252.—Laces, embroideries, and trimmings for clothing, furniture, and carriages.

CLASS 253.—Jewelry and ornaments worn upon the person.

CLASS 254.—Artificial flowers, coiffures, buttons, trimmings, pins, hooks and eyes, fans, umbrellas, sunshades, walking-canes, pipes, and small objects of dress or adornment, exclusive of jewelry. Toys and fancy articles.

CLASS 255.—Fancy leather work, pocketbooks, toilet cases, traveling equipments, valises, and trunks.

CLASS 256.—Furs.

CLASS 257.—Historical collections of costumes, national costumes.

PAPER, BLANK BOOKS, AND STATIONERY.

CLASS 258.—Stationery for the desk, stationers' articles, pens, pencils, inkstands, and other apparatus of writing and drawing.

CLASS 259.—Writing paper and envelopes, blank-book paper, bond paper, tracing paper, tracing linen, tissue paper, etc., etc.

CLASS 260.—Printing paper for books, newspapers, etc.

Wrapping paper of all grades, cartridge and manilla paper, paper bags.

CLASS 261.—Blank books; sets of account books, specimens of ruling and binding, including blanks, bill heads, etc., book binding.

CLASS 262.—Cards; playing cards, cardboard, binders' board, pasteboard, paper or cardboard boxes.

CLASS 263.—Building paper, pasteboard for walls, cane fibre felt for car-wheels, ornaments, etc.

CLASS 264.—Wall papers, enamelled and colored papers, imitations of leather, wood, etc.

MILITARY AND NAVAL ARMAMENTS, ORDNANCE, FIREARMS, AND HUNTING APPARATUS.

CLASS 265.—Military small-arms, muskets, pistols, and magazine guns, with their ammunition.

CLASS 266.—Light artillery, compound guns, machine guns, mitrailleuses, etc.

CLASS 267.—Heavy ordnance and its accessories.

CLASS 268.—Knives, swords, spears, and dirks.

CLASS 269.—Firearms used for sporting and hunting, also other implements for the same purpose.

CLASS 270.—Traps for game, birds, vermin, etc.

MEDICINE, SURGERY, PROTHESIS.

CLASS 272.—Medicines; officinal (in any authoritative pharmacopœia), articles of the materia medica, preparations, unofficinal.

CLASS 273.—Dietetic preparations, as beef extract and other articles intended especially for the sick.

CLASS 274.—Pharmaceutical apparatus.

CLASS 275.—Instruments for physical diagnosis, clinical thermometers, stethoscopes, ophthalmoscopes, etc. (except clinical microscopes, etc., for which see Class 324).

CLASS 276.—Surgical instruments and appliances, with dressings, apparatus for deformities, prothesis, obstetrical instruments.

CLASS 277.—Dental instruments and appliances.

CLASS 278.—Vehicles and appliances for the transportation of the sick and wounded, during peace and war, on shore or at sea.

HARDWARE, EDGE TOOLS, CUTLERY, AND METALLIC PRODUCTS.

CLASS 280.—Hand tools and instruments used by carpenters, joiners, and for wood and stone in general. Miscellaneous hand tools used in industries, such as jewellers', engravers'.

CLASS 281.—Cutlery, knives, penknives, scissors, razors, razor straps, skates, and implements sold by cutlers.

CLASS 282.—Emery and sand paper, polishing powders, polishing and burnishing stones.

CLASS 283.—Metal hollow ware, ornamental castings.

CLASS 284.—Hardware used in construction, exclusive of tools and implements. Spikes, nails, screws, tacks, bolts, locks, latches, hinges, pulleys. Plumbers' and gas fitters' hardware, furniture fittings, ships' hardware, saddlers' hardware, and harness fittings and trimmings.

FABRICS OF VEGETABLE, ANIMAL, OR MINERAL MATERIALS.

CLASS 285.—India rubber goods and manufactures.

CLASS 286.—Brushes.

CLASS 287.—Ropes, cordage.

CLASS 288.—Flags, insignia, emblems.

CLASS 289.—Wooden and basket ware, papier mache.

CLASS 290.—Undertakers' furnishing goods, etc.

CLASS 291.—Galvanized iron work.

CARRIAGES, VEHICLES, AND ACCESSORIES.

(For farm vehicles and railway carriages, see Departments of Agriculture and Machinery.)

CLASS 292.—Pleasure carriages.

CLASS 293.—Traveling carriages, coaches, stages, omnibuses, hearses, Bath chairs, velocipedes, baby coaches.

CLASS 294.—Vehicles for movement of goods and heavy objects, carts, wagons, trucks.

CLASS 295.—Sleighs, sledges, sleds, etc.

CLASS 296.—Carriage and horse furniture, harness and saddlery, whips, spurs, horse blankets, carriage robes, rugs, etc.

UNITED STATES.

Chemicals.

1 **Gantz, Geo. F., & Co., New York,** N. Y.—Baking powder. T 47. 200

2 **Royal Baking Powder Co., New** York, N. Y. T 47.
a Baking powder. 200
b Flavoring extracts, celery salt. 203

3 **Hance Bros. & White, Philadelphia,** Pa.—Solid and fluid extracts, sugar-coated pills. P 43. 200

4 **Fries, Alex., & Bros., New York,** N. Y. P 48.
a Chemicals, coloring, etc. 200
b Artificial fruit and liquor essences, flavors for cigars. 203

5 **Gordon, W. J. M., Cincinnati, Ohio.** —Chemicals, glycerine, sugar-coated pills, podophyllin, hydrastine. P 47. 200

6 **Rosengarten & Sons, Philadelphia,** Pa.—Sulphates of quinine and morphine, etc. P 41. 200

7 **Warner, Wm. R., & Co., Philadelphia,** Pa.—Sugar-coated pills and pharmaceutical preparations. P 43. 200

8 **Campbell, Sam'l, Philadelphia, Pa.** P 47.
a Medicinal fluid extracts. 200
b Perfumery and toilet articles. 203

9 **Kreitzer, M. C., Philadelphia,** Pa.—Medicines in marble show case from New Lebanon Valley quarry. T 43. 200

10 **Keasbey & Mattison, Philadelphia,** Pa.—Granular effervescent preparations, gelatine-coated pills, pharmaceutical specialties. P 43. 200

11 **Twining & Schiedt, Philadelphia,** Pa.—Fluid and solid extracts, sugar-coated pills, elixirs, concentrated preparations, chemicals, syrups, tinctures, powdered drugs. T 41. 200

12 **Powers & Weightman, Philadelphia,** Pa.—Sulphate quinia, salts of cinchona barks, sulphate morphia; chemicals medicinal, photographic, and for the arts. P 41. 200

13 **Harrison Brothers & Co., Philadelphia,** Pa.—Chemicals, alum, sugars of lead, acetates of lime, sulphuric, nitric, muriatic, acetic, and pyroligneous acids. P 41. 200

14 **Doerr & Sloan, Philadelphia, Pa.** —Lacto-phosphate of lime, iron, and cod-liver oil. T 40. 200

15 **Mellor & Rittenhouse, Philadelphia,** Pa.—Licorice and pharmaceutical extracts; glycerine composition for printers' rollers. P 41. 200

16 **Stearns, Fred'k, Detroit, Mich.**—Pharmaceutical products. P 41. 200

17 **Dunton, Jacob, & Co., Philadelphia,** Pa.—Pills. T 40. 200

18 **Simes, Wm. F., & Son, Philadelphia,** Pa.—Camphor press, sublimed and compressed camphor. P 41. 200

19 **Tacony Chemical Works, Philadelphia,** Pa.—Acids, chemical salts, etc. T 42. 200

20 **Dreyfus, J. G., & Co., New York,** N. Y.—Cream of tartar. T 43. 200

21 **Mockridge, E., & Co., Philadelphia,** Pa.—Azumea. T 47. 200

22 **Bullock & Crenshaw, Philadelphia,** Pa.—Sugar-coated pills, chemical apparatus. P 41. 200

23 **Pennsylvania Salt Manufacturing** Co., Philadelphia, Pa.—Kryolith, alum, lye, sodas, acids, chlo. calcium, and alumina. T 42. 200

24 **Savage, Keyser, & Stovell, Philadelphia,** Pa.—Acids and salts. T 44. 200

25 **Philadelphia Quartz Co., Philadelphia,** Pa.—Silicate of soda. T 45. 200

26 **Coyne, Geo. S., Philadelphia, Pa.** T 44.
a Acids and chemicals. 200
b Dyestuffs. 202

27 **Ohio River Salt Co., Pomeroy,** Ohio.—Coarse, fine, and dairy salt. T 44. 200

28 **Condit, Hauson, & Co., Newark, N.** J.—Metallic salts, electro-plating materials; hatters', dyers', jewelers', and manufacturers' chemicals. P 49. 200

29 **Baker, H. J., & Bro., New York, N.** Y.—Refined saltpetre, borax and camphor; epsom salts, castor oil. T 49. 200

30 **Lewis, John T., & Bros., Philadelphia,** Pa. T 42.
a Acids. 200
b White and red lead, litharge, orange mineral, paints, colors, and oils. 200

31 **Silliman Chemical Works, Philadelphia,** Pa.—Chemical products from tar and fine chemicals known as Fresenius's tests. P 43. 200

32 **Wyeth, John, & Bro., Philadelphia,** Pa.—Pharmaceutical preparations, drugs and compressed pills. P 41. 200

33 **Waterloo Yeast Co., New York,** N. Y.—Dry hop yeast cakes. T 47. 200

34 **McKisson & Robbins, New York,** N. Y.—Pharmaceutical preparations, oils, and drugs. P 43. 200

35 **White, Geo. H., Jersey City, N. J.** —Saccharated pepsin and cod-liver oil. T 50. 200

Chemicals, Oils, Soaps.

36 Kurlbaum & Co., Philadelphia, Pa. —Refined camphor and chemical preparations. P 49. 200

37 Crawford Bros., New York, N. Y. —Baking powder. T 47. 200

38 Libe, John, C., Philadelphia, Pa.— Baking yeast powder. T 47. 200

39 McIlvaine Brothers, Philadelphia, Pa.—Ground and powdered drugs, paints, etc. P 43. 200

40 Smith, Hanway, & Co., Baltimore, Md.—Baking powder. T 47. 200

41 Metcalf, Theo., & Co., Boston, Mass. T 49.
a Pharmaceutical and chemical preparations. 200
b Sachet powders, perfumery. 203

42 Chessman, W. H., Boston, Mass.— Pure lime from Missisquoi Lime Co., Highgate Springs, Vt. T 50. 200

43 Brown, Frederick, Philadelphia, Pa.—Essence of Jamaica ginger and other pharmaceutical preparations. P 41. 200

44 Hagner Drug Milling Co., Philadelphia, Pa.—Powdering, grinding, flaking, crushing, and other mill work. T 51. 200

45 Bower, Henry, Philadelphia, Pa. —Glycerine, stearic and oleic acids, prussiate of potash, sulphate of ammonia. T 43. 200

46 Browning & Brothers, Philadelphia, Pa. T 46.
a Acetic acid, acetate lime, lead, alumina, and iron, sulph. copper. 200
b Naphtha. 201
c Dyewoods. 202

47 Sphynx Tooth-paste Manufacturing Co., Bethlehem, Pa.—Tooth-paste. P 49. 200

48 Leidy, Francis D., Philadelphia, Pa.—Soap powder, washing crystals. T 50. 200

49 Phillips & Jacobs, Philadelphia, Pa.—Chemicals for the arts. P 47. 200

50 Bean, Lewis U., Philadelphia, Pa. P 49.
a Pharmaceutical preparations, drugs, etc. 200
b Paints, dry and in oil. 202

51 Pfizer, Chas., & Co., New York, N. Y.—Pharmaceutical and chemical products: cream tartar, tartaric acid, refined borax, and camphor. P 49. 200

52 Preston & Merrill, Boston, Mass. P 48.
a Yeast powder. 200
b Sugar of lemons, flavoring extracts. 203

53 Meyer, Jas., jr., New York, N. Y. —Girondin disinfectant. P 49. 200

54 Burt, E., Philadelphia, Pa.—Insect powder, roach, and rat exterminator. T 50. 200

55 Billings, Clapp, & Co., Boston, Mass.—Chemicals. T 45. 200

56 Mackeown, Bower, Ellis, & Co., Philadelphia, Pa.—Drugs and chemicals. T 43. 200

57 Bailey, John T., & Co., Philadelphia, Pa.—Salt. B 68. 200

58 Phillips & Jacobs, Philadelphia, Pa. —Illustration of the recovery of gold and silver from wastes in the industrial arts. T 46. 200

59 Tilden & Co., New Lebanon, N. Y. —Fluid and solid medicinal extracts, sugar-coated pills, pharmaceutical preparations, bromo-chloralum, etc. P 43. 200

60 White, Chas. T., & Co., New York, N. Y.—Pharmaceutical chemicals, quinia, morphia, strychnia, iodides, bromides, acids C. P., etc. P 43. 200

61 United States Salicylic Acid Works, New York, N. Y.—Salicylic acid and its preparations. P 47. 200

62 Gray, H. Daniel, New York, N. Y. —Brimstone and flour of sulphur. T 47. 200

63 Follett, O. S., New York, N. Y.— White sugar of lead, chloroform, acetic acid, and vinegar. P 47. 200

64 King, Wm., Son, & Co., Philadelphia, Pa.—Crude and refined petroleums. T 41. 201

65 Pease, F. S., Buffalo, N. Y.—Natural, mineral, vegetable, and animal oils for commercial, chemical, and medicinal purposes. P 41. 201

66 Baker, John C., & Co., Philadelphia, Pa.—Medicinal cod-liver oil, pure and in combination with other agents. P 43. 201

67 Eavenson, Jones, & Sons, Philadelphia, Pa.—Laundry soaps. T 43. 201

68 Morgan's, Enoch, Sons, New York, N. Y.—Sapolio for cleaning and polishing, hand sapolio for toilet. T 48. 201

69 Cragin, I. S., & Co., Philadelphia, Pa.—Dobbins' electric soap and materials used in its manufacture. P 47. 201

70 Wrigley, Wm., & Co., Philadelphia, Pa.—Mineral scouring soap. T 44. 201

71 McKeone, Van Haagen, & Co., Philadelphia, Pa.—Soaps, oils, perfumery, soap stock, candles. T 39. 201

72 Conway, Wm., Philadelphia, Pa.— Laundry soaps. T 49. 201

73 Marx & Rawolle, New York, N. Y. T 40.
a Glycerine. 201
b Lacquers and French varnishes, bleached and refined gum shellac, sealing wax. 202

74 Gest & Atkinson, Cincinnati, Ohio.—Lard, tallow, grease; lubricating, burning, and paint oils, car candles. T 39. 201

75 Loper & Doughten, Philadelphia, Pa.—Naval stores. T 43. 201

76 Faller, Geo. J., Philadelphia, Pa.— Sewing machine oils. T 44. 201

77 Dreydoppel, Wm., Philadelphia, Pa.—Borax soap. T 50. 201

78 Central Soap Co., Canton, Ohio.— Levigated toilet and other powdered soaps. T 50. 201

79 Page, Kidder, & Fletcher, New York, N. Y.—Coal tar products and their uses. T 42. 201

80 Aladdin Oil Co., Pittsburgh, Pa.— Illuminating and lubricating oils, paraffine, etc. T 43. 201

81 Robinson Bros. & Co., Boston, Mass.—Toilet soaps, silver soap. P 47. 201

82 Williams, J. B., & Co., Glastenbury, Conn.—Soaps. P 47. 201

83 Brown, Robt. B., & Co., St. Louis, Mo.—Castor oil. T 50. 201

Soaps, Oils, Paints, Pigments.

84 Allen Hay Co., New York, N. Y. —Laundry and toilet soaps, candles, refined tallows, and animal oils. T 48. 201

85 Brown, Warren, Flint, Mich.— Polishing powder, mineral soap, tooth powder. P 49. 201

86 Moorehouse, C. L., & Son, Cleveland, Ohio.—Oils. T 43. 201

87 Hartmann, Laist, & Co., Cincinnati, Ohio.—Glycerine. T 50. 201

88 Crew, Moore, & Levick, Philadelphia, Pa.—Illuminating and lubricating oils. T 46. 201

89 Pratt, Chas., & Co., New York, N. Y.—Petroleum and its products, and packages for same. T 43. 201

90 Miller, Edward, & Co., Meriden, Conn.—Machine oils. N 48. 201

91 Smith, Chas. K., & Co., Philadelphia, Pa.—Burning and lubricating petroleum oils, miners' and railroad oils. T 43. 201

92 Nye, Wm. F., New Bedford, Mass. —Sewing machine, watch, and clock oils. T 49. 201

93 Houghton, E. F., & Co., Philadelphia, Pa.—Cosmoline for medical purposes, cylinder and machinery oils, hydrocarbonated bone black. T 42. 201

94 Boyé, M. N., & Lewis, Geo. T., Philadelphia, Pa.—Cottonseed oil, manufactured and refined. T 50. 201

95 Harkness, N. W., Philadelphia, Pa.—Refined petroleum, naphtha, residuum, natural lubricating oils, Harkness wells, W. Va., filtering apparatus. T 43. 201

96 Doan, W. H.,—Cleveland, Ohio. T 44.
a Refined illuminating oils, naphthas, and gasolines. 201
b Varnishes and paint dryers. 202

97 Devoe Manufacturing Co., New York, N. Y.—Cans with Devoe's faucet nozzle top, and samples of oil. T 40. 201

98 Day & Frick, Philadelphia, Pa.— Laundry soap, polishes for cleaning paint, metal, etc. T 46. 201

99 Dodd, A. W., & Co., Gloucester, Mass.—Cod-liver oil. P 47. 201

100 Warden & Oxnard, Pittsburgh, Pa. —Refined petroleum. T 49. 201

101 Oleophene Oil Co., New York, N. Y.—Refined petroleum illuminating oils. T 44. 201

102 Munger, John W., Portland, Me.— Detergent compound. P 49. 201

103 King, Wm., Son & Co. Philadelphia, Pa.—Oils, crude and refined petroleum. T 41. 201

104 Detroit Polish Co., Detroit, Mich. T 57.
a Diamond corundum soap. 201
b Dentrifice. 203

105 Rush & Co., Philadelphia, Pa.— Oils. T 41. 201

106 West, C., & Sons, Baltimore, Md. —Refined petroleum oil. T 41. 201

107 Miller, William P., & Co., New York, N. Y.—Bodeker's lubricants. T 49. 201

108 Galena Oil Works, Franklin, Pa.— Lubricating oil. P 43. 201

109 Bassett, George A., Washington City, D. C.—Liquid laundry gloss. F 71. 201

110 Todd, A. M., Nottawa, Mich.—Oil of peppermint. P 47. 201

111 Cook, Caleb, Provincetown, Mass. Watch and clock oil. T 50. 201

112 Dixon Crucible Co., Jersey City, N. J.—Graphite paint. P 72. 202

113 Hover, J. E., & Co., Philadelphia, Pa.—Chemical writing fluid, black ink, carmine, violet, and copying inks, mucilage. T 47. 202

114 Wetherill & Bro., Philadelphia, Pa.—White and red lead, litharge, orange mineral. T 44. 202

115 Lucas, John, & Co., Philadelphia, Pa. — White lead, white zinc, colors, paints, varnishes, Swiss and imperial French greens, etc. T 45. 202

116 Eastman & Brooke, Philadelphia, Pa.—Soaps, washing blue, Russian dressing, and French blacking. P 47. 202

117 Bihn & Co., Philadelphia, Pa.— Lampblack. T 40. 202

118 Harrison Brothers & Co., Philadelphia, Pa.—White lead, dry and in oil, colors for painters, lithographers, and calico printing. P 41. 202

119 Dougherty, D. A., Kittanning, Pa. —Writing fluid. T 47. 202

120 Felton, Rau, & Sibley, Philadelphia, Pa. —Coach, furniture, and japan varnishes. T 40. 202

121 Reynolds, C. T., & Co., New York, N. Y.—Paints, colors, varnishes, and japans; artists' and wax flower materials. P 42. 202

122 Keystone Paint Co., Muncy, Pa.— Filler for coach, car, and safe painting, paint for school-house black-boards. T 40. 202

123 Carter, Dinsmore, & Co., Boston, Mass.—Writing fluid, inks, and mucilage, Lombard's inks and mucilage. T 47. 202

124 Fromherz, Jos., Cincinnati, Ohio.— Inks. T 47. 202

125 Heller & Merz, New York, N. Y.— Ultramarine. T 41. 202

126 Rosenberg, D., & Sons, New York, N. Y. — Varnishes and baking japans. T 44. 202

127 Ware, M. J., Philadelphia, Pa.— Ostrich feathers, dyed and scoured. P 47. 202

128 McIlvaine, Chas., & Co., Philadelphia, Pa.—Printers' copyable inks, samples of printing and copies. T 47. 202

129 Pecora Paint Company, Philadelphia, Pa.—Paints, stains, fillers, and dryers. T 41. 202

130 Davids, Thad., & Co., New York, N. Y.—Writing inks and fluid, mucilage, sealing wax, notarial seals, wafers, etc. T 47. 202

131 Gilpin & Prunier, Philadelphia, Pa.—Nutgall substitute, carmine, extract of indigo, picric acid, orceïne. P 47. 202

132 Raynald, John, Philadelphia, Pa.— Black and colored writing inks, copying inks, mucilage, hair dye, indelible ink. T 47. 202

133 Iron Clad Paint Co., Cleveland, Ohio.—Paints. T 41. 202

Paints, Dyes, Inks, Perfumery.

134 Phillips, C. C., & Co., Philadelphia, Pa.—Varnish and japans. T 41. 202

135 Allen, Jas. M., Co., New York, N. Y.—Sign painters' smalts, carmine ink. T 43. 202

136 Martin, L., & Co., Philadelphia, Pa.—Lampblack. T 41. 202

137 Barker, Moore, & Mein, Philadelphia, Pa.—White lead. T 40. 202

138 Parsons, John, New York, N. Y.—Glove powder, Dixon's silver powder, carmine and violet inks, pocket mucilage. T 47. 202

139 Knowlton, J. J., San Francisco, Cal.—Writing inks and mucilage. T 47. 202

140 Thompson, Albert, Bridgewater, Conn.—American sienna paint. T 40. 202

141 Sharpless, John M., & Co., Philadelphia, Pa.—Solid and liquid extract logwood. T 46. 202

142 Polychroite Veneer Co., Philadelphia, Pa.—Wood fibre composition for decorating wood and other surfaces. P 57. 202

143 Mathers', Geo., Sons, New York, N. Y.—Type and lithographic printing inks. T 47. 202

144 Meyers, Simon S., Philadelphia, Pa.—Stove polish, liquid blueing in ejecting bottles. T 47. 202

145 Valentine & Co., New York, N. Y.—Varnishes, etc., for fine coach and car work. T 43. 202

146 Rubber Paint Co., Cleveland, Ohio.—Waterproof house and vessel paint. T 40. 202

147 Masury, J. W., & Son, New York, N. Y.—Grained doors, showing graining colors; superfine colors for coach, carriage, and car painting. T 41. 202

148 Moss, Geo. A., New York, N. Y.—Liquid blueing, powder blue, shoe blacking, ladies' shoe dressing, writing inks, etc. T 47. 202

149 Adams White Lead Co., Baltimore, Md.—White lead and products. T 40. 202

150 Smith, Edward, & Co., New York, N. Y.—Coach and car varnishes and japan dryers. T 40. 202

151 United States Manufacturing Co., New York, N. Y.—Inks, mucilage, blueing, hair restorer, waterproof writing ink. T 47. 202

152 Moser, Chas., & Co., Cincinnati, Ohio.—Colors, dry and pulp, paints in oil, coach colors, artists' colors. T 41. 202

153 Wright, J. K., & Co., Philadelphia, Pa.—Printers' and lithographers' inks and varnishes. T 47. 202

154 Continental Manufacturing Co., Philadelphia, Pa.—Inks, writing fluids, mucilage, artists' colors. T 47. 202

155 McCloskey, Bro., & Co., Philadelphia, Pa.—Paints and colors ground in oil, dry, and in pulp. T 40. 202

156 Erwin, H., & Co., Bethlehem, Pa.—Mineral paint from Lehigh valley. T 40. 202

157 Princess Metallic Paint Co., Parryville, Pa.—Metallic paint and foundry facings. T 50. 202

158 Johnson, Chas. Eneu, & Co., Philadelphia, Pa.—Typographic and lithographic black and colored printing inks, varnishes, etc. T 47. 202

159 Kelley, J. B., & Co., Boston, Mass.—Slate coating paints. T 43. 202

160 Maynard & Noyes, Boston, Mass.—Writing ink. T 47. 202

161 Estes, E. B., & Son, New York, N. Y.—Sign painters' smalts. P 46. 202

162 Rowland, Joseph S. C., Philadelphia, Pa.—Indelible, canceling, and copying ink, and writing fluid. T 47. 202

163 American Bronze Powder Manufactory, Brooklyn, N. Y.—Bronze powders. N 50. 202

164 Francis & Loutrel, New York, N. Y. P 74.
a Copyable printing inks. 202
b Composition for inking rollers. 543

165 Foering, Geo. W., Locust Valley, Pa.—Sancon sienna. T 50. 202

166 Peirce, I. Newton, Philadelphia, Pa.—Stone surface paint, colors, and samples. T 70. 202

167 Smith, Marshall L., Kimberton, Pa.—Silex mineral paint. T 70. 202

168 Marble, Jerome, & Co., Worcester, Mass.—Indigo blue dye. T 70. 202

169 Zinsser, Wm., & Co., New York, N. Y.—Shellac, French alcohol, copal varnishes, lacquers. P 47. 202

170 Thomson, J. S., New York, N. Y.—Non-erasable and other inks. T 47. 202

171 Shaw, Thomas Ogg, Providence, R. I.—Paint made from mineral from Wyoming Territory. T 50. 202

172 Johnson, Henry M., New York, N. Y.—Kalsomine and fresco paints. P 47. 202

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178 Wenck & Briesen, New York, N. Y.—Automatic parlor fountain. P 47. 203

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181 Savournin, W. H., Philadelphia, Pa.—Lily whites, rouges, toilet powders, etc. P 47. 203

182 Malcom & Stevenson, Philadelphia, Pa.—Fruit flavoring extracts. P 47. 203

183 Paine, Schering, & Glatz, New York, N. Y.—Pure essential oils. P 47. 203

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184 Woodworth, C. B., & Son, Rochester, N. Y.—Perfumery, hair oils, pomades, cosmetics, flavoring extracts, T 47. 203

185 Young, Ladd, & Coffin, New York, N. Y.—Perfumes, oil of cologne, California water. T 48. 203

186 Chesebrough Manufacturing Co., New York, N. Y.—Vaseline, pomades, cerates, ointments, perfumes, cold cream, etc. P 43. 203

187 Lorenz Bros., Toledo, Ohio.—Concentrated perfumes. P 47. 203

188 Da Costa, D. R., Philadelphia, Pa.—Tooth wash. P 48. 203

189 Tallmadge & Co., New York, N. Y.—Essential oils and fluid extracts. P 48. 203

190 Fritzsche, Schimmel, & Co., New York, N. Y.—Essential oils and artificial fruit essences. P 47. 203

191 Bell, R. W., & Co., Buffalo, N. Y.—Staple and toilet soaps. T 48. 203

192 Taylor, C. R., & Co., Philadelphia, Pa.—Toilet soaps and perfumery. P 47. 203

193 Blair's, H. C., Sons, Philadelphia, Pa.—Toilet articles. T 47. 203

194 Colgate & Co., New York, N. Y.—Fancy soaps and perfumery. P 47. 203

195 Watson, Rich'd H., Philadelphia, Pa.—Handkerchief extracts. P 47. 203

196 Hoyt, E. W., & Co., Lowell, Mass.—Cologne. P 47. 203

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198 Worsley, Thos., & Co., Philadelphia, Pa.—Toilet and fancy soaps and toilet powders. P 47. 203

199 Wright, R. & G. A., Philadelphia, Pa.—Extracts, cologne, cosmetics, pomades, oils, dentifrices, toilet soaps, etc. P 47. 203

200 Wolf Brothers & Keech, Centreville, Mich.—Essential oils. P 47. 203

201 Aschenbach & Miller, Philadelphia, Pa.—Flavoring extracts and perfumery. P 47. 203

202 Fricke, Arthur, Philadelphia, Pa.—Perfumery. P 47. 203

203 Burnett, Jos., & Co., Boston, Mass.—Flavoring extracts, cologne water, and other toilet articles. P 48. 203

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208 Hambleton, J., & Son, Philadelphia, Pa.—Bay rum, pomades, cosmetics, colognes, extracts, hair tonics, etc. P 43. 203

209 Weaver, James B., Philadelphia, Pa.—Cologne, Florida water, bay rum. T 49. 203

210 Barber Match Co., Akron, Ohio.—Drawing-room and sulphur matches. B 75. 204

211 Toy, Bickford, & Co., Simsbury, Conn.—Safety fuses. T 45. 204

212 Laflin & Rand Powder Co., New York, N. Y.—Gunpowder, empty packages, patent cartridges for mining, fuses, crude materials. N 62. 204

213 Hazard Powder Co., Hazardville, Conn.—Sporting and blasting gunpowder. H 71. 204

214 Willis, Aug. L., Philadelphia, Pa.—Pyrotechnic fog signals. H 71. 205

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216 Neukumet, Philip, Philadelphia, Pa.—Fire bricks, clay retorts, gas-house tiles, and ornamental building brick. X 56. 206

217 Moorhead Clay Works, Philadelphia, Pa.—Terra cotta sewer and water pipes, drain and roofing tiles, garden vases, chimney tops, and flues. (*Outside.*) 206

218 Harvey & Adamson, Philadelphia, Pa.—Drain and sewer pipe, garden vases, statuary, chimney tops, flues, etc. B 72. 206

219 Remmey, Richard C., Philadelphia, Pa.—Chemical apparatus for manufacturing acids. B 68. 206

220 Gossin, F., Philadelphia, Pa.—Terra cotta ware, statuary, vases, fountains, pedestals, etc. B 69. 206

221 Bowman, O. O., & Co., Trenton, N. J.—Terra cotta drain and sewer pipe, chimney tops and flues, garden vases and statuary. B 71. 206

222 Fritz, John, Philadelphia, Pa.—Terra cotta work, hanging baskets, rustic flower pots, vases, fern cases, etc. Imitation gas logs. B 69. 206

223 Scioto Fire Brick Co., Sciotoville, Ohio.—Fire bricks and fire clays. V 61 to 64. 206

224 Ambruster, John, Camden, N. J.—Pressed brick work. U 50. 206

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226 Wood Brothers, Hartford Conn.—Drain tiles. W 53. 206

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229 Hall & Son, Perth Amboy, N. J.—Brick used in chimney of New Jersey State Building. 206

230 Maurer & Hervier, Perth Amboy, N. J.—Tiles used in construction of the New Jersey State Building. 206

231 American Kaolin Co., New Garden, Pa.—Fire brick and tile. X 58. 206

232 Bell, W. M., Smyrna, Del.—Drain tile and pipe. Y 55. 206

233 Kreischer, B., and Son, Philadelphia, Pa. X 56.
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235 Hicks, George C., & Co., Baltimore, Md. T 55.
- *a* Terra cotta pipe, vase, clays, etc. 206
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- *a* Sewer and drain pipe, fine and common pottery. 206
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241 Young's, Wm., Sons, Trenton, N. J.—Crockery and porcelain hardware trimmings. T 74. 209

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243 Whitmore, Robinson, & Co., Akron, Ohio.—Stoneware. B 69. 210

244 Carr, James, New York, N. Y.—White granite, majolica and parian ware. T 77. 210

245 Davis, Isaac, Trenton, N. J.—White granite and decorated crockery ware. T 75. 210

246 Jeffords, J. E., & Co., Philadelphia, Pa.—Yellow, Rockingham, white lined, buff-stone, majolica, and lava wares. T 77. 210

247 Astbury & Maddock, Trenton, N. J.—Earthenware for sanitary purposes; china and earthenware for general use. T 73. 210

248 Ott & Brewer, Trenton, N. J.—White granite, porcelain, and parian wares; vases, figures, table and toilet goods. T 73. 210

249 Rouse & Turner, Jersey City Pottery, Jersey City, N. J.—Crockery. T 76. 210

250 Yates, Bennett, & Allen, Trenton, N. J.—Dinner, dessert, tea, and toilet sets; crockery ware. T 77. 210

251 Scott, George, Cincinnati, Ohio.—Rockingham and yellow ware. T 77. 210

252 Brunt, Bloor, Martin, & Co., East Liverpool, Ohio.—American white granite dinner, dessert, tea, and toilet decorated ware. T 74. 210

253 Baggott, S. & W., East Liverpool, Ohio.—Rockingham and yellow ware. T 75. 210

254 American Crockery Co., Trenton, N. J.—Chamber sets and table ware of bisque, white granite, and stone china. T 73. 213

255 Greenwood Pottery Co., Trenton, N. J.—Ironstone china, decorated dinner and toilet sets. T 74. 213

256 Mercer Pottery Co., Trenton, N. J.—Plain and decorative earthenware and china. T 75. 213

257 Onondaga Pottery Co., Geddes, N. Y.—White granite and decorated table and toilet ware. T 77. 213

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267 Young, Ladd, & Coffin, New York, N. Y.—Perfume atomizers. T 48. 215

268 Pile, W. H., & Sons, Philadelphia, Pa.—Hydrometers, specific gravity bottles, graduated tubes, chemical thermometers, and analytical weights. N 50. 215

269 Guth, Henry, New York, N. Y.—Philosophical glass instruments. N 53. 215

270 Fox, H. C., & Sons, Philadelphia, Pa.—Druggists' and perfumers' glassware made from glass not containing lead. N 53. 215

271 Bush, Geo. H., & Co., Boston, Mass. T 49.
- *a* Alexandra atomizers, etc. 215
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272 Whitney Bros., Glassboro, N. J.—Green and other colored glassware for druggists, chemists, etc. N 54. 218

273 Boston and Sandwich Glass Co., Boston, Mass.—Glassware. N 51. 216

274 New England Glass Co., East Cambridge, Mass.—Glassware. N 50. 216

275 Dobelmann, J. B., Greenpoint, N. Y.—Cut and engraved glassware. N 53. 216

276 Degnan, Thos., Union Glass Works, Somerville, Mass.—Glass shades, monuments, and cylinders. N 51. 216

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AND AMERICAN GLASSWARE.

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a Cut crystal floral fountain. T 45. 216
b Crystal toilet table, prismatic candelabra, chandelier, vases, glassware. N 51. 216

278 La Belle Glass Co., Bridgeport, Ohio.—Table, bar, and lamp goods, cut and engraved ware. N 52. 216

279 Keystone Flint Glass Co., Pittsburgh, Pa.—Pure lead glass, lamp chimneys, silvered glassware. N 49 to 51. 216

280 Bakewell, Pears, & Co., Pittsburgh, Pa.—Pressed and blown crystal and opal glassware. N 49 to 51. 216

281 Ripley & Co., Pittsburgh, Pa.—Imitation cut glassware, lamps blown and cut, bar goods cut and engraved. N 49 to 51. 216

282 Duquesne Glass Manufacturing Co., Pittsburgh, Pa.—Glassware. N 49 to 51. 216

283 Richards & Hartley Flint Glass Co., Pittsburgh, Pa. Crystal glass table ware, lamps, etc. N 49 to 51. 216

284 Adams & Co., Pittsburgh, Pa.—Flint and opal glassware. N 49 to 51. 216

285 Atterbury & Co., Pittsburgh, Pa.—Lamps and glassware, gas and kerosene globes. N 49 to 51. 216

286 Excelsior Flint Glass Co., Pittsburgh, Pa.—Glass lamp chimneys, silvered glass reflectors. N 49 to 51. 216

287 Rochester Tumbler Co., Pittsburgh, Pa.—Glass tumblers. N 49 to 51. 216

288 Crystal Glass Co., Pittsburgh, Pa.—Moulded or pressed crystal glass table ware, etc. N 49 to 51. 216

289 Central Glass Co., Wheeling, W. Va.—Pressed glass ware. N 52. 216

290 Albertson, J. M., Norristown, Pa.—Window glass, glass shades, colored, obscured, and corrugated glass. N 51. 216

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292 Mitchell & Rammelsburg Furniture Co., Cincinnati, Ohio.—Rosewood bed and bureau, renaissance style; walnut dining furniture and hall stand, mediæval style. P 60. 217

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295 New York Folding Table Co., New York, N. Y.—Folding and adjustable tables, child's table. P 50. 217

296 Gardner & Co., New York, N. Y.—Chairs, settees, car and depot seats, etc. T 58. 217

297 McKinley, John, Philadelphia, Pa.—Patent barbers' chairs. T 58. 217

298 Allen & Bro., Philadelphia, Pa.—Furniture and interior decorations. P 54. 217

299 Adjustable Folding Chair Co., Pittsburgh, Pa.—Adjustable folding chair. T 59. 217

300 Henkels, Geo. J., Philadelphia, Pa.—Chamber furniture of wood from Independence square, sofa beds. P 57. 217

301 Smith & Campion, Philadelphia, Pa.—Parlor, dining-room, chamber, and library furniture. T 55. 217

302 Hart, Clarence A., Philadelphia, Pa.—Military equipments, gold fringes, etc. P 64. 217

303 Campbell, Wm., New York, N. Y.—Spring rollers for window curtains. T 52. 217

304 Delaware Chair Co., Delaware, Ohio.—Double cane-seat chairs. T 58. 217

305 Phelps, Doremus, & Corbett, New York, N. Y.—Oscillating chairs, rubber springs, chair bases, and torsion spring bottoms. P 53. 217

306 Moore, York, & Howell, Philadelphia, Pa.—Parlor furniture, folding tables. T 54. 217

307 Loth, Henry, Philadelphia, Pa.—Folding table. P 51. 217

308 Ferrari, Guiseppe, New York, N. Y.—Cabinet, richly carved in Italian style of XV century. P 58. 217

309 Everitt, Elisha E., Philadelphia, Pa.—Portable and stationary washstand and writing desk combined, sofa bed. P 56. 217

310 Krueger, C. F., Philadelphia, Pa.—Dressing table. B 74. 217

311 Spiral Elliptic Spring Works, Cincinnati, Ohio.—Springs for upholstering. P 53. 217

312 Woven Wire Web Bed Co., New Britain, Conn.—Woven wire bed bottom. P 53. 217

313 Knell, Geo., Philadelphia, Pa.—Sofa bed, invalid chair and bed, rocking reclining chair, chair and lounge, photographic chairs. T 59. 217

314 Carrington, De Zouche, & Co., Philadelphia, Pa.—Interior decorations, traverse curtain fixture. P 56. 217

315 Sheppard, Arrison, & Sheppard, Philadelphia, Pa.—Curtains, decorations, and upholstered furniture. P 53. 217

316 Marcotte, L., & Co., New York, N. Y.—Library (Henri II) and dining-room (Louis XIII) furniture. T 52. 217

317 Lever Spring Bed Co., Springfield, Ohio.—Spring bed. P 52. 217

318 Lamb, J. & R., New York, N. Y.—Church furniture, metal work, embroideries, and decorations. P 43. 217

319 Heiligmann & Bro., Philadelphia, Pa.—Solid wood cabinet carvings. P 57. 217

320 Wakefield Rattan Co., Boston, Mass.—Rattan furniture and ornamental ware. T 57. 217

321 White, Otis C., Hopkinton, Mass.—Stationary and portable head-rests for chairs and car-seat backs. T 59. 217

322 Lambie & Sargent, New York, N. Y.—Adjustable table. P 51. 217

323 Herts & Co., New York, N. Y.—Chamber suite, carved amaranth, ebony, and maple woods; upholstery, Horsfall's dressing-case wardrobe. P 54. 217

324 Cutter, Ephraim, Cambridge, Mass.—Adjustable chair for supine postures. N 58. 217

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325 Kaiser & Herzog, Philadelphia, Pa.—Decorative painting for ceilings and side walls, in the modern renaissance style. P 56. 217

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327 Kimbel, A., & Cabus, J., New York, N. Y.—Parlor furniture and decorations. P 56. 217

328 Vaill, E. W., Worcester, Mass.—Patent folding chairs. T 57. 217

329 Cutler, A., & Son, Buffalo, N. Y.—Business desks, reading tables, patent automatic folding parlor tables. P 53. 217

330 Brautigam, N. A., New York, N. Y.—Mattress. P 53. 217

331 Koechling, B. H., New York, N. Y.—Opera folding chairs. P 51. 217

332 Seymour, H. J., Chair Co., Troy, N. Y.—Bent chairs, patent braided chairs and rockers, walnut dining and library chairs. T 58. 217

333 Cooper, Jas. W., & Bro., Philadelphia, Pa.—Fancy cabinet ware, wood carvings, etc. P 57. 217

334 Stiles, Mrs. E. W., Philadelphia, Pa.—Combination desk. P 50. 217

335 Karcher's, Daniel M., Sons, Philadelphia, Pa.—Sideboard. P 60. 217

336 Yandell & Co., Chas. R., New York, N. Y.—Leather window lambrequins, embossed wall leather hangings, leather chairs and tables. P 52. 217

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338 Kilian Brothers, New York, N. Y.—Easels, parlor table, music stand, table, card receiver. P 51. 217

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340 Brown & Bliss, New York, N. Y.—Dining-room furniture, extension tables, sideboards, etc. T 50. 217

341 Palmer, Theo. J., New York, N. Y.—Rocking or reclining chair on castors. P 53. 217

342 Kittle, S. P., New York, N. Y.—Spring mattresses and cup springs. P 52. 217

343 Schenck, Jas. V., New York, N. Y.—Crescent spring mattress. P 51. 217

344 Paton, Robt., & Son, New York, N. Y.—Church and school furniture, Sunday-school and lecture-room settees. P 54. 217

345 Postawka, L., & Co., Cambridgeport, Mass.—The X piano taboret. P 60. 217

346 Roach, J. Chandler, Philadelphia, Pa.—Spring bedstead. P 52. 217

347 Deetz, Edw., Philadelphia, Pa.—Adjustable sleeping apartment or retiring room. P 57. 217

348 Reeves & Eastburn, Philadelphia, Pa.—Folding bedstead, sofa or parlor bedstead, chamber furniture, bedstead fastening. P 56. 217

349 Ahrens, Geo., Crete, Ill.—Extension table. T 50. 217

350 Briggs, Joshua, Peterborough, N. H.—Piano stools. P 57. 217

351 Taylor, W. O., & Son, Bedford, Ohio.—Double cane-seat rockers and chairs. T 59. 217

352 United States Spring Bed Co., Springfield, Mass.—Spring beds. P 52. 217

353 Chormann, E. G., Philadelphia, Pa.—Parlor, sketching, and studio easels. P 50. 217

354 Griendling, John, Philadelphia, Pa.—Barbers' chair, foot-rest, hair dressing standard. P 51. 217

355 Matlack, Henry S., Philadelphia, Pa.—Paper hanging and fresco painting. P 50. 217

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357 Phœnix Furniture Co., Grand Rapids, Mich.—Bed-room suites, sideboard, hall stand. P 57. 217

358 Wooton Desk Co., Indianapolis, Ind.—Cabinet office secretary, rotary office desk. P 52. 217

359 Nelson, Matter, & Co., Grand Rapids, Mich.—Chamber suits. P 58. 217

360 Junge, Albert, Pittsburgh, Pa.—Patent spring mattress. P 53. 217

361 Pabst, Daniel, Philadelphia, Pa.—Walnut sideboard. P 58. 217

362 Richmond, Backus, & Co., Detroit, Mich.—Combined coupon and local railroad ticket case with secretary and desk. P 58. 217

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364 Torrence, Geo. N., Philadelphia, Pa.—Life-saving cork mattress. P 51. 217

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367 Ennis, J. P., Orange, N. J.—Ladies' writing table, cradle. T 53. 217

368 Swasey, I. N., M. D., Yonkers, N. Y.—Billiard and trichorum tables, a new principle in carpentry, securing a permanently level surface. T 52. 217

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370 Henkels, John A., Philadelphia, Pa.—Sideboard, extension table, dining chairs. P 57. 217

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372 Tucker Manufacturing Co., Boston, Mass.—Spring bed bottom, iron bedsteads. P 52. 217

373 Pottier & Stymus Manufacturing Co., New York, N. Y.—Bedstead, cabinet, bahut, table, door, door trimming, window cornice, curtains, sofa, chairs. P 55. 217

374 Schafft, Fridolin, Detroit, Mich.—Sideboard. P 60. 217

375 Ransom, D. L., Buffalo, N. Y.—Adjustable desk and business cabinet. T 59. 217

376 Wagan, R. M., Mount Lebanon, N. Y.—The Shakers' chairs and cushioned foot-benches. P 52. 217

377 Grant, Geo. H., & Co., Richmond, Ind.—Settees, pew ends, school desks, etc. P 54. 217

378 Johnson & Hamlin, Philadelphia, Pa.—Victor wire mattress. P 53. 217

379 Addick & Stephens, Philadelphia, Pa.—Extension table. P 51. 217

380 Cunningham, Peter B., Bethlehem, Pa.—Anthracite coal table, from Council Ridge coal fields, Luzerne county, Pa. T 53. 217

381 Fifield, J. B. M., Philadelphia, Pa. —Magic bed-sofa. T 58. 217

382 Lancaster, Thompson, & Co., Richmond, Ind.—Pews, pew ends, church fittings, hardwood works. P 54. 217

383 Poolman, James, Providence, R. I. —Extension dining table. P 51. 217

384 Lord, J. E., & Co., Quincy, Ill.—Spring bed bottom. P 52. 217

385 Goodwin, A. J., Brookline, Mass.—Sanitary bedstead. P 52. 217

386 Hill, Edwin P., Haverhill, Mass.—Folding table. P 50. 217

387 Ivins & Bro., Philadelphia, Pa.—Walnut bed. P 53. 217

388 Seidler & May, Hartford, Conn.—Sofa-bed. P 51. 217

389 Hopper, C. C., Philadelphia, Pa.—Chamber furniture. P 57. 217

390 Hale & Co., New York, N. Y.—Furniture and chairs. T 59. 217

391 Coburn Manufacturing Co., Philadelphia, Pa.—Canopy wardrobe and wardrobe arm. P 51. 217

392 Rhoner, Frank, & Co., New York, N. Y.—Reclining chairs. P 53. 217

393 Close, Thos. J., Philadelphia, Pa.—Reversible settees. N 63. 217

394 Walraven, J. E., Philadelphia, Pa. —Room decorations and furniture. T 60. 217

395 De Bock, Matthew, South Boston, Mass.—Cabinet, work table, and frame. P 51. 217

396 Paine's Furniture Manufactory, Boston, Mass.—Pulpit and church furniture, case of designs. T 60. 217

397 The J. M. Brunswick & Balke Co., Chicago, Ill.—Billiard tables and materials. T 51. 217

398 Collins & Sturgeon, New York, N. Y.—Reclining chair. T 53. 217

399 Ellin, Robt., & Co., New York, N. Y.—Eagle lecturn carved in oak, sideboard, font, hall chairs, and litany desk. P 52. 217

400 Morse, L., & Son, Athol, Mass.—Folding settee. P 51. 217

401 Hartshorn, Stewart, New York, N. Y.—Window-shade rollers. T 51. 217

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404 Whitney Manufacturing Co., South Ashburnam, Mass.—Chairs. V 49. 217

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406 Thompson, Perley, & Waite, Baldwinville, Mass.—Cane-seat chairs, flexible seating. W 52. 217

407 Wright, Moore, & Co., South Gardner, Mass.—Cane and wood seat chairs. V 52. 217

408 Heywood Brothers & Co., Gardner, Mass.—Cane and wood seat and rattan chairs, rattan furniture, chair cane, reeds, etc. W 50. 217

409 Winchester, George C., Ashburnam, Mass.—Cane and wood seat chairs. V 50. 217

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- *b* Carvings, easels, pedestals, brackets, mosaic veneer, etc. 220

424 Earle, Jas. S., & Co., Philadelphia, Pa. P 49.
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426 Hale, Kilburn, & Co., Philadelphia, Pa. P 55.
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- *b* Mirrors. 219
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435 Derby Silver Co., Derby, Conn.—Silver-plated table ware. P 47. 218

436 Krider, Peter L., Philadelphia, Pa.—Sterling silver ware. P 43. 218

437 Reed and Barton, Taunton, Mass.—Electro-plated nickel, silver and white metal table and presentation ware. N 47. 218

438 Ledig, A., & Son, Philadelphia, Pa.—Silver and nickel plated ware in hard metal. P 43 218

439 Middletown Plate Co., Middletown, Conn.—Silver-plated ware. N 43. 218

440 Gorham Manufacturing Co., Providence, R. I.—Silverware, fine plated ware, plate chests, silver and jewelry cases. N 41. 218

441 Manning, Bowman, & Co., West Meriden, Conn.—Nickel-plated ware. N 69. 218

442 Kann & Sons Manufacturing Co., Baltimore, Md.—Albata and britannia tea and tablespoons. P 43. 218

443 Robbins, Clark, & Biddle, Philadelphia, Pa.—Silverware. N 43. 218

444 Meriden Silver Plate Co., West Meriden, Conn.—Silver-plated and fine cut glass ware. N 43. 218

445 Holmes, Booth, & Haydens, Waterbury, Conn.—Silver-plated ware. T 61. 218

446 Brown & Brothers, Waterbury, Conn.—German silver-plated goods. N 71. 218

447 Mix, G. I., & Co., Yalesville, Conn.—Tea and tablespoons; planished and britannia tea and coffee pots, water coolers, etc. N 71. 218

448 Hall, Elton, & Co., Wallingford, Conn.—Electo-plated tableware, spoons, forks, ladles, knives, etc. P 43. 218

449 Sigler, C. & J., Paterson, N. J.—Embossed glass signs and table tops, glass letters, carved wood signs. T 49. 219

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458 Johnston, Ed. S., Philadelphia, Pa.—Window shade rollers, window shades, lambrequins, cornices. T 53. 220

459 Gleason, W. B., & Co., Boston, Mass.—Artificial wood ornaments for interior decoration, etc. P 75. 220

460 Goff, R. W. P., Philadelphia, Pa.—Fancy cabinet ware. P 58. 220

461 Reifschneider, Felix, New York, N. Y.—Velvet frames, morocco and velvet miniature cases. P 52. 220

462 Pape, Bros., & Kügemann, Cincinnati, Ohio.—Mouldings for picture frames, portrait and photograph frames. P 51. 220

463 Carter, A. A., Philadelphia, Pa.—Window screens. T 50. 220

464 Whittier, Reuben S., Hyde Park, Mass.—Window screen and mosquito bar. T 51. 220

465 Kilgore, Damon Y., Philadelphia, Pa.—Inside window blinds. T 51. 220

466 McKay, Ferd. C. D., Paterson, N. J.—Self-acting shade rollers. T 51. 220

467 Cook, Wm. A., Newark, N. J.—Window shades and patent spring rollers. T 51. 220

468 Salem Shade Roller Manufacturing Co., Salem, Mass.—Control wood rollers, flying pawls, automatic stops for balance rollers. T 50. 220

469 Colwell, F. E., & Co., Chicago, Ill.—Mouldings and picture frames, shade fixtures. P 51. 220

470 Louderback, Edwin, Philadelphia, Pa.—Rustic window shades of wood. T 49. 220

471 Defreune, H. J., Green Bay, Wis.—Window rolling blinds. T 51. 220

472 Lloyd Bros., Philadelphia, Pa.—Ventilating shade fixtures. T 50. 220

473 American Shade Roller Co., Boston, Mass.—Shade rollers, window shades, and fixtures. T 51. 220

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175 Beaudet, Homer J., Greenpoint, Long Island, N. Y.—Swing convertible cradle. P 51. 221

176 Batley, John, Philadelphia, Pa.—Child's cradle or crib. P 51. 221

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180 Cornelius & Sons, Philadelphia, Pa.—Gas fixtures, bronzes, etc. N 47. 223

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183 American Reflector Co., Philadelphia, Pa.—Gas and daylight reflectors, lanterns and shades. P 47. 223

184 Tucker, Hiram, & Co., Boston, Mass.—Iron gas chandeliers, brackets and statuettes. N 47. 223

185 Willheim & Newman, Philadelphia, Pa.—Cast iron posts and brackets, street lanterns, mica reflectors, and car trimmings. N 48. 223

186 Quarré, V., & Co., Philadelphia, Pa.—Gas and lamp shades, transparent window pictures. N 48. 223

187 Baker, Arnold, & Co., Philadelphia, Pa.—Gas fixtures. N 48. 223

188 Miner, Jacob G., New York, N. Y.—Street lamps for gas or oil. P 47. 223

189 Wilhelm, August, Philadelphia, Pa.—Ceiling reflectors. P 47. 223

190 Bradley & Hubbard, Manufacturing Co., West Meriden, Conn.—Kerosene chandeliers, brackets, and fixtures, lamps. N 47. 223

191 Kramer, J. H., New York, N. Y.—Ornamental lanterns. P 47. 223

192 Walton Bros., New York, N. Y.—Railroad and steamship brass lanterns and supplies. P 47. 223

193 Dyott, M. B., Philadelphia, Pa.—Street lamps, brackets, posts, pendants, and lamp goods. P 48. 223

194 Miller, Edward, & Co., Meriden, Conn.—Bronze lamps and ornaments, lamp trimmings. N 48. 223

195 Hitchcock Lamp Co., Watertown, N. Y.—Lamps for fat oils and kerosene. P 47. 223

196 Dreer, Smith, & Dreer, Philadelphia, Pa.—Berford gas sunlight apparatus. P 47. 223

197 Atterbury & Co., Pittsburgh, Pa.—Lamps. N 49 to 51. 223

198 Parkhurst, V. P., East Templeton, Mass.—Candle stand with flame regulator. P 47. 223

199 Williams, Page, & Co., Boston, Mass.—Railway and steamship lamps. P 47. 223

500 Hale, A. W., New York, N. Y.—Flexible gas tube. P 47. 223

501 Mitchell, Vance, & Co., New York, N. Y.—Gas fixtures. N 49. 223

502 Ives Patent Lamp Co., New York, N. Y.—Kerosene lamps, brackets, chandeliers, and pendants, burners and attachments. P 47. 223

503 Stockwell Self-lighting Gas Burner Co., New York, N. Y.—Self-lighting gas burner. P 50. 223

504 Wiler, Wm., Philadelphia, Pa.—Taper holders, gas torches, and keys, etc. N 71. 223

505 Cleveland Non-explosive Lamp Co., Ohio.—Chandeliers, pendants, brackets, kerosene safety lamps. N 64. 223

506 Wallace & Sons, Ansonia, Conn.—Lamp burners. P 68. 223

507 The Maine Manufacturing Co., New York, N. Y.—Lamps. N 65. 223

508 Doty, H. H., Washington, D. C.—Concentric mineral oil burner. N 50. 223

509 Lovell, F. H., & Co., New York, N. Y.—Kerosene burners, chimneys, wicks, lamps, etc. P 50. 223

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511 Gale, D. A. T., Syracuse City, N. Y.—Automatic roaster and popper, with attachment. P 50. 224

512 Cohansey Glass Manufacturing Co., Bridgeton, N. J.—Fruit jars. N 49. 224

513 Lowentrant, P., Newark, N. J.—House furnishing goods. N 70. 224

514 Vulcan Manufacturing Co., New York, N. Y.—Meat cutters and stuffers. N 71. 224

515 Lowerre & Tucker, Newark, N. J.—Fluting machines. N 71. 225

516 Sam'l Wilkins & Orcutt Manufacturing Co., New York, N. Y.—Gas heated toilet sad-irons. P 68. 225

517 Lloyd, Supplee, & Walton, Philadelphia, Pa.—Fluting machines. P 70. 225

518 Boughton, Jno. W., Philadelphia, Pa.—Wood carpet, parquet floors, and wainscots, adjustable window screens and bars. T 56. 227

519 National Wood Manufacturing Co., New York, N. Y.—Wood carpeting, parquet and inlaid floors, ornamental hardwood ceilings, fancy wainscoting, and stair coverings. P 52. 227

520 Johns, H. W., New York, N. Y.—Asbestos roofing, sheathing, and lining felts. P 47. 227

521 Ehret, M., jr., Philadelphia, Pa.—Pavilion to exhibit granulated composition roofing. (*Outside.*) 227

522 Marion Blind Co., Brady, Pa.—Improved window blinds. T 53. 227

523 Walker, M., & Sons, Philadelphia, Pa.—Heavy wrought iron gates at north, south, east, and west entrance of Main Exhibition Building. 227

524 Fisher & Bird, New York, N. Y.—Marble mantels, tablet, marble wainscoting. T 50. 227

525 Geddes, J. W., Baltimore, Md.—Skylight over south aisle. 227

526 American Inlaid Wood Co., Cleveland, Ohio.—Inlaid wood floor. (*Ladies' parlor, Ohio State Building.*) 227

527 Garry Iron Roofing Co., Cleveland, Ohio.—Sections of corrugated iron roof. (*Ohio State Building.*) 227

528 American Sheet and Boiler Plate Co., Cleveland, Ohio.—Section iron roofing tile. (*Ohio State Building.*) 227

529 House & Davidson, Cleveland, Ohio.—Pair front doors. (*Ohio State Building.*) 227

530 Dobbins, R. J., Philadelphia, Pa.—Construction of Main Exhibition Building. 227

531 Quigley, Philip, Wilmington, Del.—Construction of Machinery Hall. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

532 De Witt, G., Bro. & Co., Belleville, N. J.—Wire cord, rope, cloth, and work, dandy roll, cotton and wire fabrics. B 76. 228

533 Clinton Wire Cloth Co., Clinton, Mass.—Iron railing, wire cloth, netting, fencing, fireproof lath. T 68. 228

534 Macready, H. A., Philadelphia, Pa.—Brass wire cloth for paper makers' use. B 77. 228

535 Woven Wire Mattress Co., Hartford, Conn.—Woven wire cloth used for a spring bed. P 53. 228

536 Wild, Jos., & Co., New York, N.Y.—Matting and mats of fibre of cocoanut husks. N 77. 229

537 Wakefield Rattan Co., Boston, Mass.—Mats and matting. T 57. 229

538 Irving Bros., Philadelphia, Pa.—Japanese paper carpeting, waterproof building paper. N 75. 229

539 Garsed Bros., Frankford, Pa.—Awnings and tickings. N 74. 230

540 Farnum, John, & Co., Philadelphia, Pa.—Tickings from Conestoga steam mills, Lancaster, Pa. N 75. 230

541 Bailey, John T., & Co., Philadelphia, Pa.—Bags. B 68. 230

542 Thornton, Samuel, & Sons, Philadelphia, Pa.—Cotton fabrics. N 76. 230

543 Berkeley Co., Providence, R. I.—Cambrics, nainsooks, and lawns of Sea Island and Egyptian cotton. N 75. 230

544 Clark Thread Co., Newark, N. J.—Spool cotton. N 76. 230

545 Emory Johnson, Neptune Twine Mills, Moodus, Conn.—Cotton twines, welting cord, carpet warps, knitting cotton. B 68. 230

546 Oakley, W. H., jr., New York, N. Y.—Carpet warp. N 75. 230

547 Semple, Samuel, & Sons, Mt. Holly, N. J.—Spool cotton. N 74. 230

548 Walcott & Campbell, New York Mills, Oneida county, N. Y.—Shirtings, wide sheetings, cottonades, and knitting yarns. N 75. 230

549 Schlittler, Mary A., Rahway, N J.—Cotton wadding and batting. N 75. 23(

550 Powhatan Mills, Providence, R I.—Bleached and brown muslins. N 74. 23(

551 Saratoga Victory Manufacturing Co., Boston, Mass.—Silesias, cambrics and fancy cottons. F 73 and 74. 23(

552 Chicopee Manufacturing Company, Chicopee Falls, Mass.—Cotton flannels, bleached and brown. F 73 and 74. 23(

553 Great Falls Manufacturing Company, Rockingham, N. C.—Rockingham sheeting. N 75. 23(

554 Peckham Manufacturing Company, Providence, R. I.—Kentucky jeans. B 76. 23(

555 Androscoggin Mills, Lewiston Maine.—Sheeting, shirting, jeans, bags etc. R 78. 23(

556 Hill Manufacturing Company Lewiston, Me.—Bleached and unbleached sheetings and shirtings. R 78. 23(

557 Continental Mills, Lewiston Me.—Sheetings and shirtings. R 78. 23(

558 Barker Mills, Auburn, Me.—Bleached and unbleached sheetings. R 78. 23(

559 Smith, James Y., Manufacturing Co., Providence, R. I.—Elmwood shirting, brown and bleached. N 76. 23(

560 Evansville Cotton Manufacturing Co., Evansville, Md.—Brown sheetings and drills, assorted yarns. N 74. 23(

561 King Philip Mills, Fall River, Mass.—Brown and bleached sheetings cambric muslins, and rolled jaconets. N 76. 23(

562 Hope Company, Providence, R. I.—Shirting. N 74. 23(

563 Lonsdale Company, Providence R. I.—Sheetings, cambric muslin, silesias, jaconets, Victoria lawns, sateens. N 74. 23(

564 Blackstone Manufacturing Company, Providence, R. I.—Print cloths shirtings, umbrella cloths. N 74. 23(

565 Gambrill, Sons & Co., Baltimore, Md.—Cotton duck for sails, tents, and awnings. D 78. 23(

566 Wamsutta Mills, New Bedford, Mass.—Shirting and sheeting. N 74. 23(

567 Shaw, James G., New Castle, Del.—Single carded cotton warps. N 74. 23(

568 Riddle, Jas., Son & Co., Wilmington, Del.—Brandywine Mills tickings. N 74. 23(

569 Wauregan Mills, Wauregan, Conn.—Cotton goods. N 74. 23(

570 Ponemah Mills, Taftville, Conn.—Plain and fancy cotton goods. N 74. 23(

571 Gabriel, Henry, & Sons, Allentown, Pa.—Counterpanes, bed coverlets, quilts, and bed spreads. F 68. 23(

572 Stafford & Co., Providence, R. I.—Cotton yarns, hosiery cops, twilled goods. N 76. 23(

573 Minot, Hooper, & Co., Boston, Mass.—Bleached cotton goods. N 73. 23(

Cotton Goods.

574 Great Falls Manufacturing Co., Boston, Mass.—Brown and bleached cotton cloth. N 73. 230

575 Dwight Manufacturing Co., Boston, Mass.—Brown and bleached cotton goods. N 73. 230

576 Lyman Mills, Boston, Mass.—Brown and bleached cotton goods. N 73. 230

577 Putnam Manufacturing Co., Providence, R. I.—Colored cotton goods. N 73. 230

578 Clinton Manufacturing Co., Providence, R. I.—Bleached cotton goods. N 73. 230

579 Bridge Mill Cotton Manufacturing Co., Providence, R. I.—Bleached cotton goods. N 73. 230

580 Manville Co., Providence, R. I.—Cotton goods, bleached and colored. N 73. 230

581 Ross, John L., Providence, R. I.—Bleached, unbleached, and colored cotton goods. N 73. 230

582 Social Manufacturing Co., Providence, R. I.—Brown, bleached, and colored cotton goods. N 73. 230

583 Warren Manufacturing Co., Warren, R. I.—Bleached and colored cotton goods. N 73. 230

584 Peabody Mills, Providence, R. I.—Colored cotton goods. N 73. 230

585 Dyerville Manufacturing Co., Providence, R. I.—Brown and bleached cotton goods. N 73. 230

586 Ballow, Geo. C., & Son, Providence, R. I.—Brown, bleached, and colored cotton cloth. N 73. 230

587 Silver Spring Bleaching & Dyeing Co., Providence, R. I.—Bleaching, dyeing, and finishing the various grades and styles of cotton cloth. N 73. 230

588 Hooper, Wm. E., & Sons, Baltimore, Md.—Awning stripes, cotton duck. D 78. 230

589 Boston Manufacturing Co., Boston, Mass.—Cotton goods. B 76. 230

590 Cabot Manufacturing Co., Boston, Mass.—Cotton goods. B 76. 230

591 Gale & Co., Boston, Mass.—Tents, canopies, and clothes dryer. (*Outside.*) 230

592 Greene & Daniels, Pawtucket, R. I.—Ivory finish and six-cord spool cotton, gray, bleached, and dyed cotton yarns. N 76. 230

593 Fall River Bleachery, Fall River, Mass.—Bleached cottons, shirtings, and sheetings. N 76. 230

594 Lowell Bleachery, Lowell, Mass.—Bleached and colored cotton fabrics. N 73. 230

595 Amoskeag Manufacturing Co., Manchester, N. H.—Tickings, denims, awning stripes, cotton flannels, ginghams, fancy shirtings, jeans, shirtings, sheetings, drillings. N 74. 230

596 Naumkeag Steam Cotton Co., Salem, Mass.—Satteens, wide sheetings, shirtings. N 74. 230

597 Massachusetts Cotton Mills, Lowell, Mass.—Sheetings, shirtings, drillings, etc. N 73. 230

598 Tremont & Suffolk Mills, Lowell, Mass.—Brown and bleached cotton flannels, sheetings, shirtings, colored suitings, corset jeans, Suffolk drills. N 73. 230

599 Appleton Co., Lowell, Mass.—Unbleached sheetings and drillings. N 73. 230

600 Boott Cotton Mills, Lowell, Mass.—Brown and bleached cottons. N 73. 230

601 Shroder, F., & Co., New York, N. Y.—Brown cottons, drills, and nankeens. B 75. 230

602 Nashua Manufacturing Co., Nashua, N. H.—Brown and bleached cottons, cotton flannels, printings. N 77. 230

603 Jackson Co., Nashua, N. H.—Heavy brown cottons. N 77. 230

604 Ocean Mills, Nashua, N. H.—Brown and bleached cottons. N 77. 230

605 Shetucket Co., Norwich Conn.—Fancy stripes, denims, ducks, cheviots. N 77. 230

606 Falls Co., Norwich Conn.—Cotton duck, fancy colored duck tickings. N 77. 230

607 Utica Steam Cotton Mills, New York, N. Y.—Brown and bleached sheetings. N 74. 230

608 Mount Vernon Co., Baltimore, Md.—Duck and sail twine. D 78. 230

609 Hadley Co., Boston, Mass.—Cotton yarns and warps, spool cottons, threads; harness and seine twines. N 75. 230

610 Union Wadding Co., Providence, R. I.—Cotton wadding, batting, and machinery waste. F 74. 230

611 Smith, H. E., & Co., Providence, R. I.—Cotton yarns for hosiery, shawl, and carpet manufacture. N 74. 230

612 Richardson, C. D., & Co., Philadelphia, Pa.—Tents. (*Outside.*) 230

613 Hale, B. S., & Co., Lawrence, Mass.—Fish lines. N 75. 230

614 Laconia Company, Biddeford, Maine.—Sheetings, shirtings, drills, and jeans. R 78. 230

615 Pepperill Manufacturing Co., Biddeford, Maine.—Sheetings, shirtings, drills, and jeans. R 78. 230

616 Otis Company, Palmer, Mass.—Denims. N 75. 230

617 Palmer Mills, Palmer, Mass.—Dress goods. N 75. 230

618 Brinckerhoff, Turner, & Co., New York, N. Y.—Duck, canvas, ravens, awning stripes, bags, twines, bunting. D 78. 230

619 Washington Manufacturing Co., Gloucester, N. J.—Printing cloths, etc. N 75. 230

620 Monument Mills, Housatonic, Mass.—Marseilles quilts. N 74. 230

621 Hart, A. H., & Co., New York, N. Y.—Carpet warps. B 68. 230

622 Monadnock Mills, Claremont, N. H.—Quilts, counterpanes, and wide sheetings. H 78 and N 74. 230

623 American Linen Co., Fall River, Mass.—Printing cloths. B 77. 230

624 Annawan Manufactory, Fall River, Mass.—Printing cloths. B 77. 230

625 Barnard Manufacturing Co., Fall River, Mass.—Printing cloths. B 77 230

Cotton and Linen Goods.

626 Border City Mills, Fall River, Mass.—Printing cloths. B 77. 230

627 Chace Mills, Fall River, Mass.—Printing cloths. B 77. 230

628 Flint Mills, Fall River, Mass.—Printing cloths. B 77. 230

629 Granite Mills, Fall River, Mass.—Printing cloths. B 77. 230

630 Mechanics Mills, Fall River, Mass.—Printing cloths. B 77. 230

631 Merchants Manufacturing Co., Fall River, Mass.—Printing cloths. B 77. 230

632 Metacomet Mills, Fall River, Mass.—Printing cloths. B 77. 230

633 Narragansett Mills, Fall River, Mass.—Printing cloths. B 77. 230

634 Osborn Mills, Fall River, Mass.—Printing cloths. B 77. 230

635 Richard Borden Manufacturing Co., Fall River, Mass.—Printing cloths. B 77. 230

636 Sagamore Mills, Fall River, Mass.—Printing cloths. B 77. 230

637 Shove Mills, Fall River, Mass.—Printing cloths. B 77. 230

638 Slade Mills, Fall River, Mass.—Printing cloths. B 77. 230

639 Stafford Mills, Fall River, Mass.—Printing cloths. B 77. 230

640 Tecumseh Mills, Fall River, Mass.—Printing cloths. B 77. 230

641 Troy Cotton and Woolen Manufactory, Fall River, Mass.—Printing cloths. B 77. 230

642 Wampanoag Mills, Fall River, Mass.—Printing cloths. B 77. 230

643 Weetamoe Mills, Fall River, Mass.—Printing cloths. B 77. 230

644 Dwight Manufacturing Co., Chicopee, Mass.—Brown and bleached sheetings and shirtings. C 78. 230

645 Lyman Mills, Holyoke, Mass.—Brown and bleached sheetings and shirtings, drills, lawns, cambrics, etc. C 78. 230

646 Great Falls Manufacturing Co., Great Falls, N. H.—Bleached and brown sheetings and shirtings. C 78. 230

647 Schum, Philip, Lancaster, Pa.—Coverlets and counterpanes. G 78. 230

648 Methuen Mill, New York, N. Y.—Jute bagging. E 78. 230

649 Webster Mills, New York, N. Y.—Jute bagging. E 78. 230

650 Nevins Mill, New York, N. Y.—Jute bagging. E 78. 230

651 Mississippi Mills, Wesson, Miss.—Yarns, cotton, cottonades. F 76. 230

652 Bullock, George & James M., Conshohocken, Ohio.—Cotton warp. F 75. 230

653 Wortendyke Manufacturing Co., Wortendyke, N. J.—Lamp wicks and cotton yarns. N 75. 230

654 Moss Manufacturing Co., Westerly, R. I.—Shirtings. N 74. 230

655 Harris Manufacturing Co., Providence, R. I.—Bleached shirtings. N 74. 230

656 Clinton Manufacturing Co., Providence, R. I.—Bleached shirtings. N 74. 230

657 Glasgow Company, South Hadley Falls, Mass.—Ginghams, yarns. N 74. 230

658 Allendale Company, Providence, R. I.—Bleached shirtings and sheetings. N 74. 230

659 Groton Manufacturing Co., Philadelphia, Pa.—Bleached goods. N 74. 230

660 Franklin Manufacturing Co., Providence, R. I.—Bleached cottons. N 74. 230

661 Providence Steam Mills, Providence, R. I.—Bleached cottons. N 74. 230

662 Tucker, Carter, & Co., New York, N. Y.—Bagging. B 69. 230

663 Renfrew Manufacturing Co., South Adams, Mass. B 75.
- *a* Cotton warps, skirtings. 230
- *b* Ginghams. 231
- *c* Cotton dress goods. 232

664 Gloucester Gingham Mills, Gloucester City, N. J. N 76.
- *a* Cottonades, shirtings. 230
- *b* Ginghams, dress goods. 231

665 Langdon Manufacturing Co., Manchester, N. H. N 74.
- *a* Brown and bleached shirtings, bleached cottons. 230
- *b* Colored silesias. 231

666 Whittenton Manufacturing Co., Taunton, Mass. N 76.
- *a* Cottonades, shirtings, tickings, denims, and awnings. 230
- *b* Dress goods and fancy checks. 231

667 York Manufacturing Co., Boston, Mass. N 74.
- *a* Ticks, denims, light and heavy cottonades, shirtings, and skirtings. 230
- *b* Nankins, seersuckers, and dress goods. 231

668 Everett Mills, Lawrence, Mass. B 73.
- *a* Fancy cottons, cottonades, ticking, denims, cheviot. 230
- *b* Stripes, ginghams, dress goods. 231

669 Davoll Mills, Fall River, Mass. N 76.
- *a* Sheetings, pillow muslins, shirtings, silesias. 230
- *b* Fancy cotton fabrics. 232

670 Hamilton Manufacturing Co., Lowell, Mass. N 73.
- *a* Tickings, drillings, and canton flannels. 230
- *b* Printed and dyed calicoes, shirting and awning stripes. 232

671 Holt, R., Paterson, N. J. N 74.
- *a* Cotton and Turkish towels, terry cloth, dusters, etc. 230
- *b* Linen towels. 233

672 Stark Mills, Manchester, N. H. N 74.
- *a* Seamless bags, sheetings, and drills, overall and double ducks. 230
- *b* Linen crash toweling. 233

673 Millville Manufacturing Co., Philadelphia, Pa. E 75.
- *a* Shirtings, cambrics, silesias. 230
- *b* Printed linings, umbrella cloths, vellums. 231
- *c* Window hollands. 233

Cotton and Linen Goods, Oil Cloths, Woolen Goods.

674 **Bates Manufacturing Co.**, Lewiston, Maine. R 78.
a Shirtings, skirtings, quilts, jeans, towels, knitting cotton, etc. 230
b Ginghams, damask, silesias. 232
c Linen checks. 233

675 **Ripka and Elton Mills**, Philadelphia, Pa.—Cotton manufactures. N 74. 231

676 **Lancaster Mills**, Clinton, Mass.—Fancy ginghams. N 77. 231

677 **Belfast Mills**, Philadelphia, Pa.—Ginghams. N 76. 231

678 **Albion Print Works**, Conshohocken, Pa.—Solid colors suitings, plain blacks, grays, mourning prints, shirtings, and printed articles for men. N 73. 232

679 **Hartel, Andreas, & Co.**, Pennypack Print Works, Philadelphia, Pa.—Madder and fancy prints and shirtings. N 75. 232

680 **Brown, David S., & Co.**, Philadelphia, Pa.—Madder fancies, shirtings and mournings from Gloucester Manufacturing Co., Gloucester, N. J.; aniline, alezarine, oil, and madder colors and shirtings from Ancona Printing Co., Gloucester, N. J. N 77. 232

681 **Simpson, Wm., & Sons**, Philadelphia, Pa.—Calico prints in mourning, fancy, and shirting styles. N 75. 232

682 **Pretty, Grime, & Co.**, Philadelphia, Pa.—Calico prints. N 74. 232

683 **Green, S. H., & Sons**, Clyde Bleachery and Print Works, River Point, R. I.—Printed calicoes. N 74. 232

684 **Richmond Manufacturing Co.**, Providence, R. I.—Printed calicoes. N 75. 232

685 **Manchester Mills**, Manchester, N. H.—Prints. N 73. 232

686 **American Print Works**, Fall River, Mass.—Printed calicoes. N 75. 232

687 **Hamilton Woolen Co.**, Southbridge, Mass.—Prints, shirting prints, printed cambrics. N 74. 232

688 **Merrimac Mills**, Lowell, Mass.—Printed and dyed calicoes. N 73. 232

689 **Stevens Linen Works**, New York, N. Y.—Plain and twilled linen crashes and diapers. B 75. 233

690 **Barbour Flax-spinning Co.**, Paterson, N. J.—Flax threads. N 76. 233

691 **McCrossan & Farr**, New York, N. Y.—Printed linen and cotton and white cotton handkerchiefs. N 76. 233

692 **American Linoleum Manufacturing Co.**, New York, N. Y.—Linoleum floor cloth. N 77. 234

693 **New York Leather Manufacturing Co.**, New York, N. Y.—An imitation of morocco and seal skin leathers. F 77. 234

694 **Blabon, Geo. W., & Co.**, Philadelphia, Pa.—Floor, carriage, upholstery, and table oil cloths and window shades. N 77. 234

695 **Dunn & Hunt**, Philadelphia, Pa.—Floor oil cloths. N 77. 234

696 **Virolet & Durlach**, Elizabeth, N. J.—Floor oil cloths. F 73. 234

697 **Atha & Hughes**, Newark, N. J.—Enameled carriage, table, and stair oiled cloth. F 77. 234

698 **Potter, Thos., Sons & Co.**, Philadelphia, Pa.—Oil cloths. N 77. 234

699 **Hyde Manufacturing Co.**, East Newark, N. J.—Imitation wood and marble table oil cloths. F 77. 234

700 **Brasher, Wm. M., & Co.**, Brooklyn, N. Y.—Floor oil cloths. F 71. 234

701 **Reeve, R. H., & B. C.**, Camden, N. J.—Oil cloths. F 71. 234

702 **Powers, D., & Sons**, New York, N. Y.—Floor oil cloths. F 77. 234

Woven and Felted Goods of Wool and Mixture of Wool.

703 **Shaffner & Stringfellow**, Philadelphia, Pa.—Knitting cotton and Germantown wool. B 75. 235

704 **Bacon, Chas. N.**, Winchester, Mass.—Felts for polishing, printing, erasing, etc., cotton and wool wadding. N 74. 235

705 **New England Co.**, Rockville, Conn.—Fancy cassimeres. B 76. 235

706 **Philadelphia Worsted Spinners' Association**, Philadelphia, Pa.—Worsted yarns. F 75. 235

707 **Midnight Yarn Co.**, Philadelphia, Pa.—Woolen knitting and Germantown yarns, representing process of manufacture. B 77. 235

708 **Thornton, Samuel, & Sons**, Philadelphia, Pa.—Woolen fabrics. N 76. 235

709 **Rockwell & Phillips**, Fitchburg, Mass.—Worsted coatings and suitings. B 77. 235

710 **Ledward, J., & Son**, Chester, Delaware county, Pa.—Cassimeres and doeskins. B 76. 235

711 **Horstmann, Wm. H., & Sons**, Philadelphia, Pa.—Woolen knitting yarns. H 73. 235

712 **Globe Woolen Co.**, New York, N. Y.—Fancy cassimeres. F 74. 235

713 **Dryfoos, L., & Co.**, New York, N. Y.—Felt skirts, embroidered and braided, Italian cloth skirts, trimmed and quilted. C 78. 235

714 **Worumbo Manufacturing Company**, Lisbon Falls, Maine.—Moscow beaver and other overcoatings. R 78. 235

715 **Bel Air Manufacturing Co.**, Pittsfield, Mass.—Fancy all-wool cassimeres. F 73. 235

716 **Burlington Woolen Co.**, Winooski Fall, Vt.—Woolens, castorines, moscows, kerseys, broadcloths, doeskins, elastic doeskins, elysians. F 73 and 74. 235

717 **Broad Brook Co.**, Broad Brook, Conn.—Fancy cassimeres. F 75. 235

718 **Weybosset Mills**, Providence, R. I.—Fancy cassimeres. F 74. 235

719 **Howard, R., & Son**, Apponang, R. I.—Woolen stocking yarns, fancy and plain colors. B 75. 235

720 **Wanskuck Co.**, Providence, R. I.—Worsted coatings, overcoatings, kerseys. B 75. 235

721 **Rodman, Robt.**, La Fayette, R. I.—Doeskins. N 75. 235

722 **Sawyer Woolen Mills**, Dover, N. H.—Silk and wool cassimeres, fancy cassimeres, double and twist cassimeres. F 75. 235

Woolen Goods, Carpets.

723 Hinsdale Bros., Hinsdale, Mass. —Kerseys, beavers, worsted suitings, etc. B 74. 235

724 Rockville Manufacturing Co., Rockville, Conn.—Fancy cassimeres and worsteds. B 74. 235

725 Hockanum Co., Rockville, Conn. —Fancy cassimeres and worsteds. B 74. 235

726 Bennett & Smith, New York, N. Y.—Felted cloths and felt skirts printed by patent process, fancy cassimeres, balmoral skirts. F 75. 235

727 Eddy's, Jesse, Sons, Fall River, Mass.—Woolens for men's wear. F 74. 235

728 U. S. Bunting Co., Lowell, Mass. —Bunting, flags, worsted damasks and moreens, skirtings, worsted yarns. H 76. 235

729 Middlesex Co., Lowell, Mass.— Woolen goods. B 77. 235

730 Germania Mills, Holyoke, Mass. —Eskimos, doeskins, and fur beavers, overcoatings. C 78. 235

731 Norway Plains Co., Rochester, N. H.—Blankets. B 73. 235

732 Norwich Woolen Co., Norwich, Conn.—Blankets and repellents. B 73. 235

733 Union Manufacturing Co., Wolcottville, Conn.—Black doeskins. B 73. 235

734 Meriden Woolen Co., West Meriden, Conn.—Fancy cotton warp cassimeres and coatings. B 73. 235

735 Niantic Woolen Mills, Norwich, Conn.—Suitings and repellents. B 73. 235

736 Mason, C. F., & Co., Providence, R. I.—Fancy cassimeres. B 76. 235

737 Wood, Morrell, & Co., Woodvale Woolen Mills, Johnstown, Pa.—Cassimeres made from half blood wool. B 77. 235

738 Berkshire Woolen Co., Great Barrington, Mass.—Cotton warp cassimeres. B 75. 235

739 Steam Woolen Co., Catskill, N. Y. B 73.
- *a* Fancy cassimeres. 235
- *b* Woolen shawls, long and square. 237

740 Peirce, C. W., & I., Bristol, Pa. G 78.
- *a* Polishing felts and crumb cloths. 235
- *b* Skirts. 238

741 Mississippi Mills, Wesson, Miss. —Wool fillings, jeans, cassimeres, tweeds, linseys. F 76. 235

742 Bullock, Geo., & Jas. M., Conshohocken Woolen Mills, Conshohocken, Pa. —Doeskins, moscows, beavers, cloth. F 75. 235

743 Fox, Henry, & Co., Urbana, Ohio. D 78.
- *a* Cassimeres, tweeds, satinets, and yarns. 235
- *b* Flannels. 236

744 Belfast Mills, Philadelphia, Pa. N 76.
- *a* Cheviots. 235
- *b* Dress goods. 238

745 Roy, Jas., & Co., West Troy, N. Y. F 77.
- *a* Suitings and yarns. 235
- *b* Woolen shawls. 237

746 Fay, C. J., Camden, N. J. F 74.
- *a* Felt roofing and siding. 235
- *b* Ceiling and floor carpeting. 239

747 McKee, Jos. D., Penn Knitting Mills, Philadelphia, Pa. N 74.
- *a* Cloths, fancy woolen goods. 235
- *b* Worsted shawls. 237

748 Bates Manufacturing Co., Lewiston, Maine. R 78.
- *a* Beavers and repellents. 235
- *b* Dress goods. 238

749 Lippitt Woolen Co., Providence, R. I. B 73.
- *a* Elysian beaver overcoatings, fancy cassimeres, and suitings. 235
- *b* Flannels. 236

750 Peace Dale Manufacturing Co., Peace Dale, R. I. F 77.
- *a* Cassimeres, coatings, lastings, etc. 235
- *b* Woolen shawls. 237

751 Schofield, Seville, Philadelphia, Pa. B 74.
- *a* Piece goods and coatings. 235
- *b* Blankets. 237

752 Camden Woolen Mills, Philadelphia, Pa. B 76.
- *a* Woolen goods, cassimeres, suitings, cloakings, repellents. 235
- *b* Plaid opera flannels. 236
- *c* Dress goods, etc. 238

753 Pigna Woolen Mills, Pigna, Ohio. B 75.
- *a* Paper makers' felts and yarns. 235
- *b* Flannels. 236
- *c* Blankets. 237

754 Washington Mills, Lawrence, Mass. F 73 and 74.
- *a* Worsted coatings, cloakings, and repellents. 235
- *b* Flannels. 236
- *c* Worsted goods, shawls, and dress goods. 238

755 Landenberger's, Martin, Sons, Philadelphia, Pa. F 67.
- *a* Worsted coatings and yarns. 235
- *b* Shawls. 237
- *c* Dress goods. 238

756 Dobson, Jno., & Jas., Philadelphia, Pa. H 77.
- *a* Cloths. 235
- *b* Blankets. 237
- *c* Carpets. 239

757 Steffan, F., & Co., Philadelphia, Pa. B 77.
- *a* Coatings. 235
- *b* Shawls. 237
- *c* Worsted dress goods. 238

758 Pontoosue Woolen Manufacturing Co., Pittsfield, Mass. F 76.
- *a* All-wool cloths and repellents. 235
- *b* Sleeping car blankets and summer dusters. 237
- *c* Dress goods. 238
- *d* Carriage rugs. 239

759 Belvidere Woolen Manufacturing Co.—Flannels. F 74. 236

760 Damon, Smith, & Co., Westvale, Mass.—All-wool, Shaker, and domet flannels. F 76. 236

761 Ballard Vale Mills, New York, N. Y.—Fine white flannels. B 75. 236

762 Waumbeek Co., New York, N. Y.—Plain white flannels. B 75. 236

763 Norway Plains Co., New York, N. Y.—Plain white flannels. B 75. 236

Woolen Goods, Carpets, Silks.

764 Lucas, B., & Co., New York, N. Y.—Plain white domets and Shakers. B 75. 236

765 Groveland Mills, New York, N. Y.—Scarlet, yellow, and blue plain flannels, scarlet and blue twilled flannels, scarlet Shaker opera flannels. B 75. 236

766 Columbia Spring Co., New York, N. Y.—Fancy flannels. B 75. 236

767 Stott, C. H. & F. H., New York, N. Y.—Mixed twilled flannel. B 75. 236

768 Titus, E., & Sons, New York, N. Y.—White and Shaker flannels. B 75. 236

769 Lyman Mills, Holyoke, Mass.—Flannels. C 78. 236

770 Gilbert, Geo. H., Manufacturing Co., Ware, Mass. F 72.
a Flannels—white, opera, silk warp, plaid, moleskin, swansdown, gauze, medicated, etc. 236
b Blankets. 237

771 Bachman, S., New York, N. Y.—Shawls. B 75. 237

772 Gibson & Tyler, New York, N. Y.—Fine white blankets. B 75. 237

773 Waterloo Woolen Manufacturing Co., Waterloo, N. Y.—Woolen shawls. B 77. 237

774 Mission Woolen Mills, San Francisco, Cal. B 75.
a Blankets. 237
b Woolen fabrics. 238

775 Arlington Mills, Lawrence, Mass.—Black alpacas and mohairs, roubaix poplins; materials of which they are made. F 77. 238

776 Peckham Manufacturing Co., Providence, R. I.—Woolen and merino knitting yarns, tweeds, doeskins. B 76. 238

777 Manchester Mills, Manchester, N. H.—Worsted dress goods. N 73. 238

778 Turner, John, Norwich, Conn.—Dyed and printed worsted, woolen, and cotton yarns for weaving, knitting, etc. B 77. 238

779 Tunxis Mills, Poquonnock, Conn.—White and colored worsted yarns; process of manufacture from raw wool. B 76. 238

780 Tarr Alpaca Co., New York, N. Y.—Alpacas, serges, cashmeres, fancy linings. B 74. 238

781 Hamilton Woolen Co., Southbridge, Mass.—Delaines, reps. N 74. 238

782 Wood, Wm., & Co., Philadelphia, Pa.—Cotton and woolen goods. B 77. 238

783 Walshaw, Wm., Saxonville, Mass.—Colored wool and yarns. F 69. 238

784 Lowell Manufacturing Co., Boston, Mass.—Serges and lastings. F 77. 238

785 Ramsden, David, Fulton, N. Y. B 76.
a Lastings, Italian cloths and serges, buntings. 238
b Brilliantines. 240

786 Wood & Haslam, Camden, N. J. B 77.
a Turkey red yarn. 238
b Quilts, table cloths. 241

787 Smith, Alex., & Sons Carpet Co., Yonkers, N. Y.—Power loom, axminster, tapestry brussels, and tapestry ingrain carpetings. F and H 73 to 76. 239

788 Wentworth, C. B., & Co., Boston, Mass.—Star quilted carpet lining. F 75. 239

789 Gibb & Co., Philadelphia, Pa.—Rag carpet. F 77. 239

790 Dornam, Bros. & Co., Philadelphia, Pa.—Ingrain carpets and damask. F 77. 239

791 Bromley, Jno., & Sons, Philadelphia, Pa.—Ingrain and damask Venetian carpets. H 77. 239

792 Leedom, Shaw, & Stewart, Philadelphia, Pa.—Carpetings. F 77. 239

793 Chipman, Geo. W., & Co., Boston, Mass.—Carpet lining and stair pads. F 75. 239

794 Taylor, Jas., & Muller, S. N., Newark, Del.—Rag and rug carpet. F 74. 239

795 Hartford Carpet Co., Hartford, Conn.—Brussels and three and two ply ingrain carpeting. F and H 73 to 76. 239

796 Wagan, R. M., Mount Lebanon, N. Y.—The Shakers' plush floor rugs. P 52. 239

797 Ivins, Dietz, & Magee, Philadelphia, Pa.—Three and two ply ingrain carpets. H 75. 239

798 Bigelow Carpet Co., Clinton, Mass.—Jacquard brussels and wilton carpets, rugs and mats. F and H 73 to 76. 239

799 Lowell Manufacturing Co., Boston, Mass.—Wilton and brussels, two and three ply ingrain carpeting. F and H 73 to 76. 239

800 Roxbury Carpet Co., Boston, Mass.—Tapestry carpeting. F and H 73 to 76. 239

801 Read Carpet Co., Bridgeport, Conn.—Two-ply ingrain carpets. H 77. 239

802 Farrington & Kinsey, Rahway, N. J.—Wool extracted from rags. B 76. 240

803 Pawtucket Hair Cloth Co., Pawtucket, R. I.—Automatically woven hair cloths for upholstery. B 74. 240

Silk and Silk Fabrics, and Mixtures in which Silk is the predominating Material.

804 Belding Bros. & Co., Rockville, Conn. H 76.
a Twisted silk in gum, raw silk, cocoons. 242
b Machine twists; sewings, embroidery, and saddlers' silks; buttonhole twist. 243

805 Aub, Hackenburg, & Co., Philadelphia, Pa. H 76.
a Raw silk and cocoons. 242
b Machine and buttonhole twist, sewing and spool silk. 243

806 Franke, Louis, New York, N. Y. H 74.
a Thrown silk. 242
b Silk fringes, passamenterie, braids, cords, tassels. 249

807 Hamil & Booth, Paterson, N. J. H 76.
a Raw and thrown silks. 242
b Dress goods, tie silks. 245
c Ties. 247
d Ribbons. 248

Silk, Clothing.

808 Seavey, Foster, & Bowman, Boston, Mass. H 75.
a Cocoons, raw silk. 242
b Twisted silk. 243

809 Werner, Itschner, & Co., Philadelphia, Pa.—Silk ribbon fabrics. H 74. 243

810 Brainerd, Armstrong, & Co., New York, N. Y.—Spool and skein silks, black and colors. H 75. 243

811 Hovey, F. S., Philadelphia, Pa.—Sewing silks and machine twists. H 76. 243

812 Morel, Chas., & Sons, Philadelphia, Pa.—Skein silks dyed. H 76. 243

813 Cheney Brothers, Hartford and South Manchester, Conn. H 75.
a Twist. 243
b Spun silks and spun silk fabrics. 244
c Dress goods, serges, florentines, and foulards. 245
d Organzine, tram, and handkerchiefs. 247
e Ribbons. 248

814 Atwood & Richmond, Brooklyn, Conn.—Ounce silk machine twist, black and colors. H 77. 243

815 Nonotuck Silk Co., Florence, Mass.—Black and colored machine twist, buttonhole twist, embroidery and sewing silk. H 74. 243

816 Hayden, J. H., & Son, Windsor Locks, Conn.—Black sewing silk. H 76. 243

817 Heminway, M., & Sons Silk Co., New York, N. Y.—Spool, embroidery, and saddlers' silk; machine and buttonhole twist, etc. H 73. 243

818 Holland Manufacturing Co., Willimantic, Conn.—Silk machine twist and sewing silk. H 74. 243

819 Baare, Fred., Paterson, N. J.—Millinery, tie, and umbrella silks. H 77. 244

820 Strange, Wm., & Co., Paterson, N. J. H 73
a Millinery and dress silks. 245
b Ribbons. 248

821 Dexter, Lambert, & Co., New York, N. Y. H 73.
a Silk piece goods. 245
b Ribbons. 248
c Dress trimmings. 249

822 Soliliac, A., & Sons, Paterson, N. J.—Dress silks. H 73. 245

823 Wright, Wm. P., Philadelphia, Pa.—Oiled silks and muslins. H 76. 245

824 Simon, Herman, Union, N. J.—Black and colored dress silks. H 75. 245

825 Weidmann, Jacob, Paterson, N. J.—Dyed silk, blacks and colors. H 76. 246

826 American Silk Label Manfacturing Co., New York, N. Y.—Names of signers of Declaration of Independence, labels and other designs, woven in silk. H 77. 246

827 Meyenberg, S. M., Paterson, N. J. H 74.
a Silks, upholstery satins. 246
b Ladies' silk scarfs, sewing silk veils. 247

828 Stearns, Jno. N., & Co., New York, N. Y. H 77.
a Brocade silks. 246
b Silk handkerchiefs. 247

829 Tilt, B. B., & Son, New York, N. Y. H 74.
a Silk woven portraits and piece goods. 246
b Silk scarfs and handkerchiefs. 247

830 Soliliac, A., & Sons, Paterson, N. J.—Ribbons. H 73. 248

831 Horstmann, W. H., & Sons, Philadelphia, Pa.—Dress, carriage, and upholstery trimmings; narrow textile fabrics; passamenterie. H 73. 249

832 Kohn, Tobias, Novelty Weaving and Braiding Works, Hartford, Conn.—Star and embroidery braids. H 76. 249

833 Dale Manufacturing Co., Paterson, N. J.—Silk, mohair, and fancy trimming braids; cords, bindings, hat bands, braided sewings, and watch guards. H 75. 249

834 Kemper, J., & A., Philadelphia, Pa.—Ladies' dress trimmings. H 77. 249

835 Fleisher, S. B., & M., Philadelphia, Pa.—Alpaca braids. F 71. 249

836 Sutro Bros., New York, N. Y.—Embroidery braids. F 71. 249

837 Nottingham Lace Works, Brooklyn, N. Y.—Guipure, thread, cashmere, and other laces and trimmings; hair nets. H 75. 249

838 Turner, John, Norwich, Conn.—Picture and furniture cords. B 77. 249

839 Goff, D., & Son, Pawtucket, R. I.—Alpaca skirt braid. F 71. 249

840 Silver Lake Co., Boston, Mass.—Solid braided cords. F 68. 249

841 Kelty, G. L., & Co., New York, N. Y.—Furniture coverings, gimps, fringes, cords, tassels, and other upholstery goods. C 78. 249

Clothing, Jewelry, and Ornaments, Traveling Equipments.

842 Häpke, A. B., Harrisburg, Pa.—Knit goods and embroideries. F 69. 250

843 Moore, Leopold, Philadelphia, Pa.—Wrappers, shirts, silk hats. F 73. 250

844 Sachse, F., & Son, Philadelphia, Pa.—Dress, cricket, fire, base ball, boating, yachting, and society shirts. F 69. 250

845 Butterick, E., & Co., New York, N. Y.—Paper patterns for ladies' and children's garments. H 70. 250

846 Smith & Van Culin, Philadelphia, Pa.—White and colored shirts. F 71. 250

847 Chapman, Mrs. Harriet M., Philadelphia, Pa.—Skirt supporting shoulder brace and puff corset. F 69. 250

848 Politzer, Jacob, Philadelphia, Pa.—Ladies' dresses and theatre costumes. F 70. 250

849 Schuyler, Hartley, & Graham, New York, N. Y.—Military and naval equipments, society and theatrical goods. F 70. 250

850 Glazier, J. J., Bro. & Co., Philadelphia, Pa.—Brown, bleached, and colored hose and half hose. F 72. 250

851 Judson Bros., New York, N. Y.—Shirts, underwear, drawers. F 70. 250

852 Thalheimer & Hirsch, Philadelphia, Pa.—Gentlemen's white and fancy shirts, underwear, collars, and cuffs. F 71. 250

Clothing.

853 Michaelis & Kaskel, New York, N. Y.—Shirts, underwear, and pjamas; anti-rheumatic flannels. F 67. 250

854 Harvey & Baird, Philadelphia, Pa.—Shirts. F 72. 250

855 Scott, J. W., & Co., Philadelphia, Pa.—Shirts, collars, cuffs, undershirts, drawers, and men's furnishing goods. F 70. 250

856 Devlin & Co., New York, N. Y.—Clothing for men and boys, uniforms of army, navy, and national guard, gentlemen's house garments. F 67. 250

857 Prindle, G. H., Philadelphia, Pa.—Muffs and boas, caps, cloaks, affghans, capes, hoods, designs for bed spreads. F 70. 250

858 Moore, George, New York, N. Y.—Bias and bias neck cutter. H 71. 250

859 Thomas, A. W., Philadelphia, Pa.—Bustle, skirt elevator, bosom form. F 70. 250

860 Rosenbach & Co., Philadelphia, Pa.—Shirts, pantaloons, overalls, drawers. F 68. 250

861 Conrad Bros., Philadelphia, Pa.—Shirts, collars, cuffs, etc. F 67. 250

862 National Suspender Co., New York, N. Y.—Shoulder braces and suspenders. F 68. 250

863 Cohn, M., & Co., Novelty Corset Works, New York, N.Y.—Woven corsets. F 69. 250

864 Piqua Woolen Mills, Piqua, Ohio.—Jackets and woolen socks. B 75. 250

865 Taylor, S. T., New York, N. Y.—System of dressmaking, bias cutter, fashion journals. N 65. 250

866 Hopkins, W. T., Philadelphia, Pa.—Ladies' and children's undergarments, infants' dresses, hoop skirts, corsets, panniers, bustles. F 69. 250

867 Horstmann, Wm. H., & Sons, Philadelphia, Pa.—Military and theatrical goods. H 73. 250

868 Demorest, Mme., New York, N. Y.—Fashion patterns and bulletin, dress-cutting system, corsets, shoulder brace, skirt and stocking suspenders. F 68. 250

869 Nashawannuch Manufacturing Co., Easthampton, Mass.—Elastic rubber suspenders and webs. F 67. 250

870 Altman, Moritz, Camden, N. J.—Cloth leather surface suspenders. F 70. 250

871 Thompson, E. O., Philadelphia, Pa.—Clothing. F 71. 250

872 Sternberger, L., & S., Philadelphia, Pa.—White shirts. F 68. 250

873 Norfolk and New Brunswick Hosiery Co., New Brunswick, N. J.—Ladies', gentlemen's, and children's knitted underwear. F 70. 250

874 Warner Bros., New York, N. Y.—Corset and skirt supporter, corset waist. F 70. 250

875 Bowers, Jas., & Co., Newark, J.—Sewed corsets and rivetless corset clasps. F 69. 250

876 Alkinson, Henry, Philadelphia, Pa.—White shirts, buckskin shirts and drawers. F 70. 250

877 Zäuner, Henry, Philadelphia, Pa.—Lace, silk, and meo caps, hand knit and crochet zephyr goods, for infants. F 70. 250

878 Sullivan, F. W., & Co., Newark, N. J.—Cork bosom pad. F 69. 250

879 Borm, L., Philadelphia, Pa.—Dress suit. F 69. 250

880 Wilson, J. H., Philadelphia, Pa.—Military goods. F 70. 250

881 Foy & Harmon, New Haven, Conn.—Skirt supporting corset. F 69. 250

882 America Hosiery Co., New Britain, Conn.—Wool, merino, and cotton underwear, hosiery. F 68. 250

883 Worcester Corset Co., Worcester, Mass.—Corsets, corset and skirt supporters. F 69. 250

884 Boston Comfort Corset Co., Boston, Mass.—Corset without bones. F 69. 250

885 Palmer & Williams, Boston, Mass.—Jacqueline corsets and misses' waists. F 69. 250

886 Denham, T. M., & Brother, New Bedford, Mass.—White laundried shirts and shirt bosoms. F 68. 250

887 Rockhill & Wilson, Philadelphia, Pa.—Clothing. F 69. 250

888 Lowell Hosiery Co., Lowell, Mass.—Women's plain cotton hose. F 69. 250

889 Wanamaker & Brown, Philadelphia, Pa.—Gentlemen's, youths', and children's ready-made clothing; gentlemen's furnishing goods. B 67. 250

890 Wanamaker, John, & Co., Philadelphia, Pa.—Ancient and modern clothing worn by American gentlemen during the past century. T 60. 250

891 Smith, Chester L., & Co., Philadelphia, Pa.—Gentlemen's fine dress shirts. F 68. 250

892 Cummings, J. S., & Co., Philadelphia, Pa.—Scarfs, cravats, stocks, bows, and neck wear. F 68. 250

893 Hughes, Thos., & Co., Bristol, Pa.—Cotton, merino, and wool hosiery. F 70. 250

894 Strahan, Hodgson, & Co., New York, N. Y.—Linen collars and cuffs. F 72. 250

895 American Suspender Co., Waterbury, Conn.—Webbing frills and suspenders. F 68. 250

896 Brewster Bros. & Co., Birmingham, Conn.—Corsets, combined corset and skirt supporters, corset clasps. F 69. 250

897 Gabriel, Henry, & Sons, Allentown, Pa.—Knitted woolen and cotton hosiery. F 68. 250

898 American Molded Collar Co., Boston, Mass.—Combined cloth and paper collars. F 70. 250

899 Frost, Geo., & Co., Boston, Mass.—Corsets, waists, hose supporter, emancipation suit and under-flannel. F 70. 250

900 Sweet, Orr, & Co., Wappinger's Falls, N. Y.—Pantaloons, overall, jackets, hunting coats. F 76. 250

Clothing.

901 Bickford, Dana, New York, N. Y.—Knitted articles made on Dana Bickford's knitting machines. F 68. 250

902 Dreifus, S., Philadelphia, Pa.—Hand-made zephyr goods, jackets, nubias, hoods, leggings, mittens, caps, sacks, etc. F 70. 250

903 Landenberger's, Martin, Sons, Philadelphia, Pa.—Hosiery and knit goods. F 67. 250

904 United States Corset Co., New York, N. Y.—Corsets. B 71. 250

905 Sharpless & Sons, Philadelphia, Pa.—Ladies' costumes. B 68. 250

906 Rothschild Bros. & Gutman, New York, N. Y.—Shirts, drawers, and undershirts. F 69. 250

907 Cameron, Wm., & Son, Philadelphia, Pa.—Embroidering, braiding, and stamping designs, children's clothing, indelible ink marking. F 70. 250

908 Dress Reform Co., Boston, Mass.—Dress reform clothing. F 71. 250

909 Otis Co., Palmer, Mass.—Hosiery and underwear. N 75. 250

910 Hayden, James, Philadelphia, Pa.—Shirts, drawers, and neektie shields. F 72. 250

911 Peck & Greene, Brooklyn, N. Y.—Worsted and silk goods for theatrical, boating, and general underwear. B 75. 250

912 Star Knitting Co., Cohoes, N. Y.—Cotton, woolen, and merino shirts, drawers, pantalets, and union suits. F 67. 250

913 Parsons, J. H., & Co., Cohoes, N. Y.—Cotton, woolen, and merino shirts, drawers, pantalets, and union suits. F 67. 250

914 Brookside Hosiery Mills, Troy, N. Y.—Cotton, woolen, and merino shirts, drawers, pantalets, and union suits. F 67. 250

915 McDonnell, Kline, & Co., Amsterdam, N. Y.—Cotton, woolen, and merino shirts, drawers, pantalets, and union suits. F 67. 250

916 Bennett, E., Brooklyn, N. Y.—Shirts. F 68. 250

917 Coon & Van Volkenburgh, Troy, N. Y.—Men's linen collars and cuffs. F 67. 250

918 Ellis Manufacturing Co., Waltham, Mass.—Stocking supporters. H 71. 250

919 Homer, Colladay, & Co., Philadelphia, Pa. F 71.
- *a* Ladies' dresses, trousseaux, neckties, searfs, and furnishing goods. 250
- *b* Embroidery, lingerie. 252

920 Pettingell & Sawyer, East Cambridge, Mass. F 67.
- *a* Waterproof oil elothes. 250
- *b* Waterproof hats. 251

921 Carney, Bernard L., Philadelphia, Pa.—Silk, beaver, and felt hats. B 70. 251

922 Jacoby, Theo., Philadelphia, Pa.—Hats, bonnets with domestic trimmings. F 70. 251

923 Hegle, Fortuné, New York, N. Y.—Material for kid glove manufacturing and kid gloves. B 68. 251

924 Stetson, John B., & Co., Philadelphia, Pa.—Soft and stiff felt hats in various stages of manufacture. B 70. 251

925 Walton, Maison, New York, N. Y.—Bonnets and round hats. F 71. 251

926 Littleton Saranac Buck Glove Co., Boston, Mass.—Grain tanned gloves. B 69. 251

927 Ryan, Wm., New York, N. Y.—Hats, improved body and ventilator. B 70. 251

928 Brown, Emma, New York, N. Y.—Straw round hats and feathers. B 70. 251

929 Nonnenberger, Christian, Philadelphia, Pa.—Hatters' blocks and tools. B 69. 251

930 Fenton, J. H., & Bro., Philadelphia, Pa.—Gentlemen's dress. silk, soft and stiff felt, and other hats. B 70. 251

931 Pierson & Herman, Newark, N. J.—Hat blocks and flanges, hatters' tools. B 70. 251

932 Yates, Wharton, & Co., Newark, N. J.—Fur felt hats. B 70. 251

933 Field, J. C., & J. F., Philadelphia, Pa.—Gloves. B 69. 251

934 Hays, Daniel, Gloversville, N. Y.—Buckskin and peccary skin gloves, gauntlets, and mittens. B 71. 251

935 Miller, Knight, & Co., New York, N. Y.—Gents' dress silk and business hats. B 70. 251

936 Crofut & Knapp, South Norwalk, Conn.—Soft and stiff fur hats. B 70. 251

937 Haverhill Hat Co., Haverhill, Mass.—Wool hats. B 69. 251

938 Solmans, Alden, South Norwalk, Conn.—Felt hats. B 71. 251

939 Morris, E., & Co., Philadelphia, Pa.—Silk, soft, and stiff hats. B 71. 251

940 Amidon's Son, T. H., New York, N. Y.—Hats and caps. B 70. 251

941 Dunlap & Co., New York, N. Y.—Gents' hats, ladies' riding hats. B 70. 251

942 Kennedy, Thos., & Bro., Philadelphia, Pa.—Wax figure in bridal costume, trimmed bonnets and hats. F 72. 251

943 Schiller, Jos., & Co., St. Louis, Mo.—Hats for gentlemen's wear. B 69. 251

944 Clark, Samuel, New York, N. Y.—American conforming apparatus for fitting hats. B 71. 251

945 Hutchinson, John C., Johnstown, N. Y.—Gloves and gauntlets. B 71. 251

946 Northrup, W. S., & M. S., Johnstown, N. Y.—Gloves and gauntlets. B 71. 251

947 Colwell, F. E., & Co., Chicago, Ill.—Husking gloves. P 51. 251

948 Kohn, Morris, New York, N. Y.—Gloves, gauntlets, and mittens. B 72. 251

949 Bancroft, J. S., & Co., New York, N. Y.—Hats and caps, boys' and children's hats. B 72. 251

950 Kursheedt & Co., New York, N. Y.—Rufflings, flutings, etc., collarettes, embroideries, ties, ladies' collars and cuffs. F 69. 252

951 Bentley, Jeff. O., Philadelphia, Pa.—Embroidered, braided, and stamped goods, indelible marking, designs, stamps. F 72. 252

Clothing, Jewelry, Ornaments, Fancy Articles.

952 Barrett, Jos. W., Philadelphia, Pa.—Embroidery and braiding designs, hand worked and printed. F 72. 252

953 Thomas, Joel, Philadelphia, Pa.—Ruches, ladies' and infants' caps, ruffings, and collarettes. F 71. 252

954 Clickerman, L. M., Philadelphia, Pa.—Embroidery on linen cambric. F 68. 252

955 Palmer & Kendall, Middletown, Conn.—Mosquito net canopies with attachments, machine tentered wide fabrics, mosquito nettings, cords and window lines. F 77. 252

956 Bedichimer, Isaac, Philadelphia, Pa.—Masonic marks, society jewels, pins, and emblems in gold and silver. N 43. 253

957 Muhr's, H., Sons, Philadelphia, Pa.—Finger rings and jewelry. P 43. 253

958 Bailey & Co., Philadelphia, Pa.—Jewelry. N 43. 253

959 Simons, Opdyke, & Co., Philadelphia, Pa.—Gold chains, gold head canes, thimbles, gold and pearl jewelry. P 43. 253

960 Caldwell, J. E., & Co., Philadelphia, Pa.—Jewelry and artistic manufactures in the precious metals, for use and decoration. N 41. 253

961 Vulcanite Jewelry Co., New York, N. Y.—Vulcanite and jet and conbination vulcanite and jet jewelry. P 43. 253

962 Goggin, Jas., New York, N. Y.—Suites of jewelry, and jewel cases of shell, jet, and bog oak. P 50. 253

963 Neher, Chas., Philadelphia, Pa.—Hair jewelry. P 43. 253

964 Starr & Marcus, New York, N. Y.—Diamonds, pearls, precious stones, rich jewels, and stone cameos. N 41½. 253

965 Morgan & Headly, Philadelphia, Pa.—Gold spectacles and chains, fine jewelry. N 42. 253

966 Cottier, C., & Son, N. Y.—Imitation of precious stones and fancy cut stones. P 44. 253

967 Wilson, Alex. D., New York, N. Y.—Jewelry of Scottish designs, and ornaments for the Scottish costume. P 43. 253

968 Richards, J. J., & J. M., New York, N. Y.—Sleeve and collar buttons, studs, crosses, pins, and eardrops. P 43. 253

969 Haas, Jas. A., & Co., Philadelphia, Pa.—Jewelry; masonic and other emblems. N 43. 253

970 Hamilton & Hunt, Providence, R. I.—Plated chains and buckle bracelets. P 43. 253

971 Kipling's, R., Sons, New York, N. Y.—Precious and imitation stones for jewelry. N 43. 253

972 Tiffany & Co., New York, N. Y. N 41.
a Jewelry, precious stones. 253
b Gilt goods. 254

973 Robbins, Clark, & Biddle, Philadelphia, Pa. N 43.
a Jewelry, diamonds. 253
b Bronzes, fancy goods. 254

974 Miller, Thos., New York, N. Y.—Silk umbrellas. B 70. 254

975 Pope Manufacturing Co., Boston, Mass.—Rifle air pistols. H 71. 254

976 Wallace & Keller, Philadelphia, Pa.—Walking canes, bell earrings, and fancy articles. B 72. 254

977 Birgé & Berg, Philadelphia, Pa.—Artificial flowers, picture of lion, made of flowers. F 72. 254

978 Glendenning & Truitt, Philadelphia, Pa.—Whips. B 71 254

979 Lacmarr, J., & Sons, Philadelphia, Pa.—Doll bodies. F 72. 254

980 Pilling, George P., Philadelphia, Pa.—Society jewels and small wares. N 52. 254

981 Beader, Adamson, & Co., Philadelphia, Pa.—Cowhide whips. N 68. 254

982 Wilson, John, Philadelphia, Pa.—Carved walking canes. B 69. 254

983 Hirsh & Brother, Philadelphia, Pa.—Umbrellas, parasols, and materials. B 72. 254

984 Galbraith, Alex., Philadelphia, Pa.—Wax flowers and materials. F 71. 254

985 Richardson, C. D., & Co., Philadelphia, Pa.—Umbrellas, parasols, and canes. B 71. 254

986 Potter, W. K., Providence, R. I.—Tortoise shell goods, combs, jewelry, etc. P 43. 254

987 Nickle, Robt., Rochester, N. Y.—Magical apparatus and toys. J 78. 254

988 Bloodgood, Miss A. De Etta, New York, N. Y.—Sheet wax, wax flowers, leaves, shells, fruit, etc.; illuminated and rustic crosses. P 42. 254

989 Chambers & Co., Philadelphia, Pa.—Umbrellas, parasols, and sun umbrellas. B 72. 254

990 Johnson, E. S., New York, N. Y.—Tooth picks and ear spoons. N 43. 254

991 Palm, Chas., & Co., New York, N. Y.—Transfer ornaments for decorating. B 78. 254

992 Wahl, Emil, Philadelphia, Pa.—Fancy bone work, dominoes, chessmen, crochet needles, buttons, jewelry, etc. N 43. 254

993 India Rubber Comb Co., New York, N. Y.—Hard rubber combs, syringes, drinking flasks; surgical, telegraphic, and photographic goods, etc. B 67. 254

994 Leiner, Moritz, New York, N. Y.—Ear cleaners, filtering racks, sponge baskets. T 46. 254

995 Aiken, Lambert, & Co., New York, N. Y.—Tooth picks. N 43. 254

996 Koch, Sons, & Co., New York, N. Y.—Albums and backgammon boards. P 76. 254

997 Giraudat, Ambrose, New York, N. Y.—Artificial flower materials. F 70. 254

998 Ellis, Knapp, & Co., New York, N. Y.—Umbrellas and parasols. B 70. 254

999 Drown, W. A., & Co., Philadelphia, Pa.—Umbrellas and parasols. B 69. 254

1000 Hopkins & Robinson Manufacturing Co., Akron, Ohio—Smoking pipes and animal pokes. B 75. 254

Jewelry, Ornaments, Toys, Fancy Articles.

1001 Orange Judd Co., New York, N. Y.—Crandall's building blocks. 254

1002 Henly, David, Philadelphia, Pa.—Artificial flowers. F 72. 254

1003 Dickinson, Mrs. C. J., Chicago, Ill.—Wax flowers, leaves, fruit, ferns, etc. P 42. 254

1004 Tobin, Joseph F., New York, N. Y.—Whalebone goods. F 72. 254

1005 Mabie, Todd, & Baird, New York, N. Y.—Tooth picks. N 43. 254

1006 Saml. Wilkins & Orcutt Manufacturing Co., New York, N. Y.—Metallic shawl carriers. P 68. 254

1007 Riley & Lynch, Newark, N. J.—Bag and umbrella trimmings, military metal goods, masonic ornaments, etc. H 67. 254

1008 Celluloid Manufacturing Co., Newark, N. J.—Toilet brushes, etc., made from celluloid. N 43. 254

1009 Braeunlich, Wm., & Co., New York, N. Y.—Tooth picks. N 43. 254

1010 Leonhard, Theo., Paterson, N. J.—Bleached beeswax, metallic moulds for flowers, tapers. N 56. 254

1011 Bradley & Hubbard Manufacturing Co., West Meriden, Conn.—Bronzes, call bells. N 47. 254

1012 Oelkers, John B., Newark, N. J.—Ivory, bone, horn, and rubber goods. B 76. 254

1013 Carlisle, Henry, & Son, Philadelphia, Pa.—Tortoise shell and horn combs, jewelry sets, and fancy articles. N 52. 254

1014 Althof, Bergmann, & Co., New York, N. Y.—Tin and mechanical toys. C 78. 254

1015 Reynolds & Shaw, Jersey City, N. J.—Rubber, shell, and jet jewelry, combs, etc. P 43. 254

1016 Bickel, August, & Son, Philadelphia, Pa.—Crutches and canes. B 71. 254

1017 Heister & Gans, New York, N. Y.—Automatic umbrellas and parasols. B 69. 254

1018 Kaldenberg, Fred. Julius, New York, N. Y.—Genuine meerschaum pipes and cigar holders, amber goods. P 66. 254

1019 Holland, John, Cincinnati, Ohio.—Tooth picks. N 43. 254

1020 Adams, J. H., & Co., Providence, R. I.—Tortoise shell jewelry and combs. N 42. 254

1021 American & Howe Pin Co., New York, N. Y.—Brass and iron pins. F 71. 254

1022 Wagan, R. M., Mount Lebanon, N. Y.—Fancy articles made by the Shakers. P 52. 254

1023 Stehr, Carl, New York, N. Y.—Meerschaum and amber goods. B 75. 254

1024 Harvey & Ford, Philadelphia, Pa.—Canes, umbrella and whip handles, pipes, billiard balls; pearl, horn, and ivory work. B 70. 254

1025 Waterbury Button Co., Waterbury, Conn.—Army, navy, railroad, police, state, livery, and cloth buttons; ladies' belt buckles, medals, and badges. B 76. 254

1026 Novelty Manufacturing Co., Waterbury, Conn.—Umbrella, parasol, and pipe trimmings; belt clasps, chains, and small brass and plated goods. F 71. 254

1027 Armstrong, F., Bridgeport, Conn.—Duplex ventilated garters and armlets. F 72. 254

1028 Field, A., & Sons, Taunton, Mass.—Buttons and eyelets. P 68. 254

1029 Cook, Norman, New York, N.Y.—Satina umbrellas. B 71. 254

1030 Cross, Richard, & Son, Providence, R. I.—Tooth picks. N 43. 254

1031 Mitchell, Vance, & Co., NewYork, N. Y.—Bronzes. N 49. 254

1032 Independent Comb Co., Wappinger's Falls, N. Y.—Ladies' horn and rubber combs, dressing combs, pipe stems, and bits. B 73. 254

1033 Barnhurst & Robinson, Philadelphia, Pa.—Umbrella and parasol stretchers. B 70. 254.

1034 Grottenthaler, V., Philadelphia, Pa.—Block for wood engravers, wooden smoking pipes. B. 74. 254

1035 Ives, Blakeslee, & Co., Bridgeport, Conn.—Mechanical toys and novelties. F 72. 254

1036 The Mains Manufacturing Co., New York, N. Y.—Dice box. N 65. 254

1037 Nax, Kuhn, & Silberman, Philadelphia, Pa.—Tobacco pipes, umbrella and parasol handles, cigar tubes, etc. B 75. 254

1038 National Button Co., Easthampton, Mass.—Cloth-covered, vegetable, and ivory buttons. B 76. 254

1039 Spaulding, D. S., Mansfield, Mass.—Tortoise shell jewelry, back combs, and fancy goods. N 43. 254

1040 Sevey, J. A., Boston, Mass.—Articles of whalebone, for whips, canes, corsets, dresses, etc. B 70. 254

1041 Eureka Manufacturing Co., Boston, Mass.—Air pistols. H 71. 254

1042 Joslin, Palmer, & William, New York, N. Y.—Horn and rubber goods, fancy back combs, and jewelry. N 43. 254

1043 Hildreth, Milo, & Co., Northboro, Mass.—Horn and tortoise shell combs and jewelry. N 43. 254

1044 Quackenbush, H. W., Herkimer, N. Y.—Air gun and pistol darts. N 58. 254

1045 Fiske Bros. & Co., New York, N. Y.—Parasols and umbrellas. F 67. 254

1046 Todd, Edward, & Co., New York, N. Y.—Tooth picks. N 43. 254

1047 Lane Manufacturing Co., Waterbury, Conn.—Belt buckles, buttons, curtain racks; metal goods. F 70. 254

1048 Harris, S., & Sons Manufacturing Co., Clinton, Mass.—Dressing and fancy combs, imitation jet and shell chains. H 71. 254

1049 Wild, G. L., & Brother, Washington, D. C.—Musical dancing toy attachment for pianos. N 64. 254

1050 Moutoux, Emil W., New York, N. Y.—Hair pictures and devices for breastpins. P 52. 254

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1051 Grote, F., & Co., New York, N. Y.—Carved and turned ivory; pearl and shell goods. B 71. 254

1052 Ansley, Fred. W., St. Augustine, Fla.—Jewelry made from native Florida material. H 68. 254

1053 Lambeth, Samuel W., Philadelphia, Pa.—Fly fan moved by clockwork. H 71. 254

1054 The Platt Bros. & Co., Waterbury, Conn.—Buttons. H 71. 254

1055 Cheshire Manufacturing Co., West Cheshire, Conn.—Buttons. H 71. 254

1056 Godfrey, C. J., & Son, Naugatuck, Conn.—Thimbles. H 71. 254

1057 Comstock Dickinson Ivory Co., Center Brook, Conn.—Ivory fine combs. H 71. 254

1058 Blake and Johnson, Waterbury, Conn.—Satin finish hair pins. H 71. 254

1059 Ives, Blakeslee, & Co., Bridgeport, Conn.—Silk covered ventilated metallic garters. H 71. 254

1060 Peacock, H. H., Philadelphia, Pa.—Fancy cases in morocco, velvet, and marqueterie, for jewelry, etc.; physicians' cases. P 63. 255

1061 Rumpp, Chas., Philadelphia, Pa.—Fancy leather goods, dressing case, work boxes, pocketbooks, satchels, etc. N 69. 255

1062 Kolb, G. F., & Son, Philadelphia, Pa.—Cases for jewelry and silverware. B 74. 255

1063 Rumpp, C. F., Philadelphia, Pa.—Fancy leather goods, pocketbooks, cigar cases, satchels, and traveling bags. B 68. 255

1064 Parkhurst & Gridley, Newark, N. J.—Shawl and book strap. P 68. 255

1065 Likly, McDonald, & Rockett, Cleveland, Ohio.—Fancy leather work, gun case, etc. B 70. 255

1066 Stambach, John A., & Co., Philadelphia, Pa.—Ladies' and gentlemen's furs and robes. B 68. 256

1067 Mawson, Ed. S., & Sons, Philadelphia, Pa.—Seal sacques, muffs, caps, gloves; seal, sable, and mink skins, etc. B 68. 256

1068 Fishblatt, Lewis, Philadelphia, Pa.—Ladies' furs and carriage robes. B 70. 256

1069 Mahler, M., New York, N. Y.—Furs. B 67. 256

1070 Reisky, N. C., Philadelphia, Pa.—Ladies' furs, gentlemen's driving goods, sleigh robes, Indian painted buffalo robes. B 69. 256

1071 Booss, F., & Bro., New York, N. Y.—Fur sacques, coats, muffs, boas, caps, hats, gloves, etc. B 69. 256

1072 Isaacs, Judah, Philadelphia, Pa.—Ladies', children's, and gentlemen's manufactured furs. B 67. 256

1073 Blaylock & Co., Philadelphia, Pa.—Hats and furs, robes, fur caps, turbans, gloves, etc.; straw hats. B 71. 256

1074 Bareiss, Fredk., Philadelphia, Pa.—Fur sets, and robes of mink, sable, beaver, ermine, and seal. B 71. 256

1075 Kaehler, Otto, Philadelphia, Pa.—Stuffed animals, raw and dressed skins, fur robes, fancy furs, etc. B 68. 256

1076 Duryee & Hallett, Rahway, N. J.—Dressed and dyed furs. H 68. 256

1077 Burnett, W. H., & R., Newark, N. J.—Furs, fur cloaks, and fur-lined mantles. B 68. 256

Paper, Blank Books, and Stationery.

1078 Dixon Crucible Co., Jersey City, N. J.—Pencils of graphite. P 72. 258

1079 McGill, Geo. W., New York, N. Y.—Fasteners for binding papers, suspending rings, erasive tips, press bowls. P 73. 258

1080 Hoskins, W. H., Philadelphia, Pa.—Paper, envelopes, designing, engraving, printing, and lithographing. P 76. 258

1081 Woodruff, E. W., Washington, D. C.—File holders. P 49. 258

1082 Tiffany & Co., New York, N. Y.—Stationery. N 41. 258

1083 Goldsborough, John, Philadelphia, Pa.—Ribbon machine and hand stamps, perforating and cancelling stamps. P 73. 258

1084 American Lead Pencil Co., New York, N. Y.—Lead pencils, materials, and process of manufacture. P 74. 258

1085 Fairchild, Leroy W., & Co., New York, N. Y.—Gold pens and holders, pen and pencil cases, etc. N 43. 258

1086 Faber, Eberhard, New York, N. Y.—Lead pencils, penholders, rubber goods, and stationers' articles. P 73. 258

1087 Cooke, G. K., & Co., New York, N. Y.—Revolving hand stamps, seal presses, rubber stereotypes, check protectors, combined pad and rack. P 77. 258

1088 Johnson, E. S., New York, N. Y.—Gold pens, pencils, and cases. N 43. 258

1089 Muller's Sons, Nicholas, New York, N. Y.—Bronze stationery ware, inkstands. P 76 258

1090 Janentzky & Co., Philadelphia, Pa.—Artists' materials. P 77. 258

1091 Bergner, Theo., Philadelphia, Pa.—Drawing boards, parallel rulers, and section liners for draughtsmen's use. P 76. 258

1092 Hawkes, Geo. F., New York, N. Y.—Gold pens, gold, silver, pearl, and rubber pencils; fountain pen. N 43. 258

1093 Lipman, Hymen L., Philadelphia, Pa.—Eyelet machines, combining punch and riveter. P 74. 258

1094 Brower Bros., New York, N. Y.—Inkstands, paper weights, sponge cups, letter files, etc. P 74. 258

1095 Aiken, Lambert, & Co., New York, N. Y.—Gold pens, cases, pencils, etc. N 43. 258

1096 Buck, T. S., & Co., Davenport, Iowa.—Rubber type forms, rubber dating stamp. P 73. 258

1097 Stiles, Mrs. E. W., Philadelphia, Pa.—Book paper-file, revolving inkstand. P 30. 258

1098 Woolley, G. W., Philadelphia, Pa.—Reservoir pen. N 53. 258

1099 Stoddard, Richd. T., Boston, Mass.—Book supporter. P 74. 258

1100 Plummer, Geo. W., & Co., Newark, N. J.—Inkstands, desk furniture, school stationery, etc. P 74. 258

1101 Bender & Phillips, Hohokus, N. J.—Sheet wax. P 73. 258

1102 Mabie, Todd, & Baird, New York, N. Y.—Gold pens, cases, pencils, holders. N 43. 258

1103 Newark Crayon Co., Newark, N. J.—White and colored school crayons. P 77. 258

1104 Braeunlich, Wm., & Co., New York, N. Y.—Gold pens, pen and pencil cases. N 43. 258

1105 Parkhurst & Gridley, Newark, N. J.—Stationers' goods. P 68. 258

1106 Foley, John, New York, N. Y.—Gold pens, pencils, and penholders. N 43. 258

1107 Chase, John S., New York, N. Y.—Flour paste. P 77. 258

1108 Mason & Co., Philadelphia, Pa.—Engraving, fine stationery, illuminating, stamping, and copper-plate printing. P 73. 258

1109 Foye, W. H., Portland, Maine.—Folios and clips, combined folio, clip, and index. P 73. 258

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1111 United States Soapstone Manufacturing Co., Cincinnati, Ohio.—Soapstone slate pencils, blackboard crayons, tailors' markers. P 77. 258

1112 Hart, Bliven, & Mead Manufacturing Co., New York, N. Y.—Stationery for the desk, gong bells. P 70. 258

1113 Atwater, J. H., Providence, R. I.—Newspaper files, letter copiers, blackboard erasers, articles for school gymnasiums, etc. P 77. 258

1114 Lockhart, A. M., & Co., Pittsburgh, Pa.—Patent billholder and separator, clips, arm rests, etc. P 76. 258

1115 Croft, Wm., & Co., New York, N. Y.—Rubber stamps and stencils. P 74. 258

1116 Cross, Richard, & Son, Providence, R. I.—Gold plated pen and pencil cases. N 43. 258

1117 Walker, Tucker, & Co., Philadelphia, Pa.—Rubber hand stamps. P 74. 258

1118 Esterbrook Steel Pen Co., Camden, N. J.—Pens and penholders. P 72. 258

1119 Eagle Pencil Co., New York, N. Y.—Lead and mechanical pencils, copying crayons, penholders, stationery, wood and brass articles. P 76. 258

1120 Todd, Edward, & Co., New York, N. Y.—Gold pens and holders, pen and pencil cases, pens, etc. N 43. 258

1121 Rowland, Joseph S. C., Philadelphia, Pa.—Canceling ink pad. T 47. 258

1122 Edsall, D. A., New York, N. Y.—Rubber hand stamps, stereotypes, folding rack pads. P 73. 258

1123 Morton, James, New York, N. Y.—Gold pens, gold, celluloid, and pearl pencils and penholders. N 43. 258

1124 Donovan, J. W., Detroit, Mich.—Record file covers, classified directory. P 58. 258

1125 Koch, Sons, & Co., New York, N. Y. P 76.
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- *b* Blank books. 261

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- *b* Blank books and printed books. 261

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- *a* Office stationery. 258
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1131 Southworth Co., Mittineaque, Mass.—Writing papers. P 75. 259

1132 Mount Holly Paper Co., Mount Holly Springs, Pa.—Writing papers. P 73. 259

1133 Whiting Paper Co., Holyoke, Mass.—Fine papers. P 77. 259

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1136 Carson & Brown Co., Dalton, Mass.—Writing paper. P 74. 259

1137 Parsons Paper Co., Holyoke, Mass.—Writing paper. P 74. 259

1138 Crane & Co., Dalton, Mass.—Bond, bank-note, parchment, letter, and note paper. P 74. 259

1139 Parker, Joseph, Son, & Co., New Haven, Conn.—Treasury and commercial blotting paper. P 74. 259

1140 Jessup & Laflin, Westfield, Mass.—Ledger papers. P 73. 259

1141 Plimpton Manufacturing Co., Hartford, Conn.—Envelopes, papeteries, writing paper. P 75. 259

1142 Tileston & Hollingsworth, Boston, Mass.—Steelplate, chromo, and woodcut paper. P 77. 259

1143 Glessner & Gilbert, Lanesville, Ohio.—Telegraph papers. P 77. 259

1144 Hurlbut Paper Co., South Lee, Mass.—Writing and blank book papers. P 73. 259

1145 Case, Lockwood, & Brainard Co., Hartford, Conn. P 74.
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1149 Jessup & Moore, Philadelphia, Pa.—Copperplate, lithograph, and book papers, news paper. P 74. 260

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1175 Kerr, N. M., & Co., Philadelphia, Pa.—Paper boxes, jewelers' findings. P 75. 262

1176 Dixon, Charles A., & Co., Philadelphia, Pa.—Engraved wedding and visiting cards, invitations, heraldic designs, and illuminations in monograms. P 75. 262

1177 American Paper Box Co., Philadelphia, Pa.—Fancy paper boxes. P 74. 262

1178 Porter & Bainbridge, New York, N. Y.—Cardboard, stationery, papeteries, etc. N 72. 262

1179 Dennison & Co., Boston, Mass.—Jewelers' paper boxes, cards, tags, labels, seals, tissue papers, sealing wax, jewelers' and surgical cotton. P 75. 262

1180 Osborn, Bennet, Newark, N. J.—Paper boxes. P 74. 262

1181 Dennison & Brown, Portland, Maine.—Wood pulp and products, paper boxes, etc. P 77. 262

1182 Cornell & Shelton, Birmingham, Conn.—Folding paper boxes. P 74. 262

1183 Crompton, John, & Co., Philadelphia, Pa.—Jewelers', druggists', and perfumers' boxes. P 74. 262

1184 Rhode Island Cardboard Co., Pawtucket, R. I.—Cardboard, cards for printers and photographers, manilla tag stock. P 74. 262

1185 McClement Brothers, Philadelphia, Pa.—Embossed business cards, embossed labels, cut and gummed, and impressions from notarial and society seals. P 74. 262

1186 Nashua Card and Glazed Paper Co., Nashua, N. H.—Fancy paper boxes, colored paper and cardboard. P 74. 262

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1192 Churchill, E., Cleveland, Ohio.—Roofing felt. P 75. 263

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1194 Gordon, A. Dunlop, Philadelphia, Pa.—Building and manilla concrete felts. P 74. 263

1195 Case Brothers, South Manchester, Conn.—Paper boards. P 74. 263

1196 Barrett, Arnold, & Kimball, Chicago, Ill. P 76.
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1197 Van Skelline, Theo., Brooklyn, N. Y.—Motto papers and motto flowers. P 74. 264

1198 Dejonge, Louis, & Co., New York, N. Y.—Fancy colored, glazed, plated, enameled, varnished, embossed, and printed papers. P 74. 264

1199 Beck, Fred., & Co., New York, N. Y.—Wall papers. P 76. 264

1200 Howell & Brothers, Philadelphia, Pa.—Paper hangings, borders, fireboard prints, and window papers. P 76. 264

1201 Howell & Bourke, Philadelphia, Pa.—Paper hangings and fresco decorations. P 75. 264

1202 Westerberg, Jefferson, & Co., New York, N. Y.—Decorations and embossed gold papers. P 76. 264

1203 Nagle, Cook, & Ewing, Philadelphia, Pa.—Decorative paper hanging. P 55. 264

Military and Naval Armaments, Ordnance, Firearms, and Hunting Apparatus.

1204 Union Metallic Cartridge Co., Bridgeport, Conn.—Metallic shells, bullets, wads, and percussion caps; cartridge machinery. H 70. 265

1205 Sparks, Thos. W., Philadelphia, Pa.—Drop shot, mould, and conical balls. H 71. 265

1206 Billings & Spencer Co., Hartford, Conn.—Breechloading firearms. H 72. 265

1207 Remington, E., & Sons, Ilion, N. Y.—Firearms and ammunition. H 67. 265

1208 Smith & Wesson, Springfield, Mass.—Revolving firearms. H 69. 265

1209 Colt's Patent Firearms Manufacturing Co., Hartford, Conn.—Breechloading military and sporting small-arms, and military and pocket revolvers for metallic ammunition. H 72. 265

1210 Gardner, Wm., Hartford, Conn.—Breechloading cannon, machine guns, magazine shoulder arms. H 69. 265

1211 Forehand & Wadsworth, Worcester, Mass.—Revolving military and sporting firearm. H 71. 265

1212 Rawbone, Thos., Newark, N. J.—Cartridge creaser. H 72. 265

1213 Whitney Arms Co., Whitneyville, Conn.—Breechloading military and sporting rifles, carbines, shotguns, revolvers, etc., with ammunition. H 72. 265

1214 Sharps Rifle Co., Bridgeport, Conn.—Rifles. H 72. 265

1215 Merchants' Shot Tower Co., Baltimore, Md.—Drop and mould shot, soft bar lead. H 71. 265

1216 Burgess, Andrew, Owego, N.Y.—Magazine rifles for military and sporting purposes. H 68. 265

1217 Goldmark, Joseph, New York, N. Y.—Percussion caps, primers, burglar alarm exploders, blasting detonators, metallic and paper cartridges, metal and paper boxes. H 71. 265

1218 Lovell, John P., & Sons, Boston, Mass.—Revolvers. H 72. 265

1219 Dana, Edw. A., Boston, Mass.—Expanding projectiles for rifled cannon. H 72. 265

1220 Schoverling & Daly, New York, N. Y.—Hunting and target rifles, revolvers, breechloading implements. H 70. 265

1221 Winchester Repeating Arms Co., New Haven, Conn.—Magazine or repeating military and sporting firearms, metallic cartridges for small arms. H 72. 265

1222 Wesson, Frank, Worcester, Mass.—Breechloading sporting and pocket target rifles. H 70. 265

1223 Rupertus, Jacob, Philadelphia, Pa.—Revolvers and repeating pistols. H 70. 265

1224 United States Cartridge Co., Lowell, Mass.—Metallic cartridges. H 72. 265

1225 American Arms Co., Boston, Mass.—Double-barreled, breechloading shotguns, and locks. H 72. 265

1226 Merwin, Hulbert, & Co., New York, N. Y.—Revolving firearms and magazine gun, military and sporting metallic cartridges. H 70. 265

1227 Evans Rifle Manufacturing Co., Mechanic Falls, Me.—Magazine rifle, carbine, and musket. H 70. 265

1228 Willis, Aug. L., Philadelphia, Pa.—Time and percussion shell fuse. H 71. 265

1229 Miller, Wm. Deeds, New York, N. Y.—Firearms. H 70. 265

1230 Snider, Frank H., Philadelphia, Pa.—Breechloader and needle-gun.—H 68. 265

1231 Stevens, J., & Co., Chicopee Falls, Mass.—Breechloading shotguns, rifles, and pistols. H 71. 265

1232 Taylor, Jas. P., Carter Depot, Tenn.—Battery or machine gun. H 71. 266

1233 Gatling, Richard J., Hartford, Conn.—Battery gun. H 70. 266

1234 Witty, Calvin, New York, N. Y.—Breechloading field cannon. H 70. 266

1235 Nekervis, Wm., Philadelphia, Pa.—Model of Parrott gun, with caisson complete. H 72. 266

1236 South Boston Manufacturing Co., Boston, Mass.—Bronze and steel rifle cannon, boat howitzer. H 71. 266

1237 Born, B., West Medford, Mass.—Miniature field artillery, limber, and field piece. H 72. 266

1238 Farrington, D. W. C., Lowell, Mass.—Machine battery gun. H 72. 266

1239 Ferrell, John A., Bloomfield, Ky.—Model, perforated, reinforced, breechloading, heavy ordnance. H 68. 267

1240 Ames Manufacturing Co., Chicopee, Mass.—United States regulation, masonic, and society swords. H 72. 268

1241 Collins & Co., New York, N. Y.—Machetes, swords, bayonets, etc. N 67. 268

Weapons, Medical and Surgical Appliances.

1242 Gaylord Manufacturing Co., Chicopee, Mass.—Presentation and society swords. N 70. 268

1243 Wurfflein, Wm., Philadelphia, Pa. —Parlor or gallery rifles and mechanical targets. H 72. 269

1244 Krider, John, Philadelphia, Pa. H 72.
a Guns, pistols. 269
b Fishing tackle and sporting goods. 270

1245 Providence Tool Co., Providence, R. I.—Breechloading rifles for military, target, and sporting purposes H 72. 269

1246 Tryon, E. K., jr., & Co Philadelphia, Pa.—Muzzle loading rifles . shotguns, revolvers, gunmakers' tools, etc. H 70. 269

1247 Harder, J., & Son, Lock Haven, Pa.—Single, double, and three barrel guns. H 71. 269

1248 Parker Chas., Meriden, Conn.—Double-barreled breechloading shot guns. H 70. 269

1249 Harrington & Richardson, Worcester, Mass.—Revolving firearms with shell ejector. H 72. 269

1250 Burton, Bethel, Brooklyn, N. Y.—Military and sporting magazine rifles, bayonets, portable cartridge reloader. H 72. 269

1251 Grant & Co., Newark, N. J.—Cap rifles and targets. H 72. 269

Medicine, Surgery, Prothesis.

1252 Boericke & Tafel, Philadelphia, Pa.—Official homeopathic medical preparations, books and periodicals. N 50. 272

1253 Wallace Bros., Statesville, N. C. —Materia medica plants, substances, fruits, woods, mosses, etc. N 58. 272

1254 Seabury & Johnson, New York, N. Y.—Plasters. N 52. 272

1255 Mitchell, Geo. E., Lowell, Mass. —Surgical, medicinal, and pharmaceutical plasters and plaster compounds, lung protectors. N 53. 272

1256 Fehr, Julius, Hoboken, N. J.—Baby powder. N 52. 272

1257 Randle, Wm. H., Baltimore, Md.—Botanical medicines. N 52. 272

1258 Tims, Wm., Paterson N. J.—Homeopathic pellets. N 52. 272

1259 Wilson, B. O., & G. C., Boston, Mass.—Pressed medicinal herbs, leaves, flowers, seeds, roots, barks, etc. N 52. 272

1260 Smith's Homeopathic Pharmacy, New York, N. Y.—Homeopathic preparations in tinctures, triturations, and globules, cases for professional and family use. N 54. 272

1261 Ayer, J. C., & Co., Lowell, Mass. —Cherry pectoral, cathartic pills, sarsaparilla, ague cure, hair vigor. N 52. 272

1262 Blair's, H. C., Sons, Philadelphia, Pa. T 47.
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b Fountain syringes. 274

1263 Hance Bros. & White, Philadelphia, Pa.—Conical plate drug mill and filtering apparatus. P 43. 274

1264 Bishop, Joaquin, Sugartown, Pa. —Platina crucibles, stills, bottles, wine, blowpipe tubes, ignition tubes, etc. P 49. 274

1265 Gilbert, Alfred A., Philadelphia, Pa.—Medicine chest and saddlebags. N 51. 274

1266 Hechelman, H. W., Allegheny City, Pa.—Anatomical preparations of human ear and eye. N 54. 275

1267 McIlroy, T., New York, N. Y.—Invalid, elevating, and fracture bedsteads, surgical operating and dissecting tables, oculists' and surgical operating chair. N 50. 276

1268 Condell, J., & Son, New York, N. Y.—Artificial limbs. N 58. 276

1269 Everett, B. C., Philadelphia, Pa. —Trusses, supporters, shoulder braces, elastic stockings, belts, and artificial limbs. N 56. 276

1270 Taylor, Charles F., New York, N. Y.—Orthopedic apparatus and machines for local exercise. N 52. 276

1271 Tiemann, Geo., & Co., New York, N. Y.—Surgical instruments and orthopedic appliances. N 51. 276

1272 Marks, A. A., New York, N. Y.—Artificial limbs, india rubber hands and feet. N 58. 276

1273 Woods, J. T., Toledo, Ohio.—Splint for leg and thigh. N 59. 276

1274 Pilling, Geo. P., Philadelphia, Pa. —Surgical instruments. N 52. 276

1275 Mervine, S. P., jr., Philadelphia, Pa.—Gynæcological apparatus. N 52. 276

1276 Gemrig, J. H., Philadelphia, Pa. —Surgical instruments and appliances. N 57. 276

1277 Perry, Vincent, Germantown, Pa. —Elastic bandages for surgical purposes. N 57. 276

1278 National Surgical Institute, Indianapolis, Ind.—Surgical and mechanical appliances, splints, operating chairs, crutches, supporters, and trusses. N 56. 276

1279 Penfield, E. C., & Co., Philadelphia, Pa.—Trusses, etc. N 59. 276

1280 Elastic Truss Co., New York, N. Y.—Elastic trusses and abdominal supporters. N 56. 276

1281 Blanck, Wm., & Son, Philadelphia, Pa.—Artificial limbs and appliances. N 58. 276

1282 Bradford, H. W., Randolph, Mass.—Litholycite; instrument for dissolving calculi. N 51. 276

1283 Leiner, Moritz, New York, N. Y. —Surgical instruments. T 46. 276

1284 Rhodes, Isaac M., Hancock, Mich. —Easy chair, invalid bed, and fracture apparatus combined. N 59. 276

1285 Clement, Richard, Philadelphia, Pa.—Artificial limbs. N 58. 276

1286 Horn, W. H., & Bro., Philadelphia, Pa.—Trusses, abdominal supporters, etc. N 59. 276

1287 Darrach, S. A., East Orange, N. J.—Wheel crutch and attachments; vulcanized rawhide spine support. N 58. 276

1288 Goodier, John, Philadelphia, Pa. —Lever and shield trusses, etc. N 58. 276

Medical and Surgical Appliances, Tools.

1289 Crandall, Chas. J., New York, N. Y.—Crutches. N 56. 276

1290 Woolley, G. W., Philadelphia, Pa.—Gynæcological apparatus. N 53. 276

1291 Hinkle & Mayon, San Francisco, Cal.—Surgical and mechanical appliances, splints, operating chairs, crutches, supporters, and trusses. N 56. 276

1292 Handy & Boland, Atlanta, Ga.—Surgical and mechanical appliances, splints, operating chairs, crutches, supporters, and trusses. N 56. 276

1293 Kolbe, D. W., Philadelphia, Pa.—Surgical and orthopedical instruments; artificial limbs. N 53. 276

1294 Triumph Truss Co., New York, N. Y.—Truss and supporter. N 53. 276

1295 Kerns, Horatio G., Philadelphia, Pa.—Surgical and dental instruments. N 56. 276

1296 Foster, James A., Philadelphia, Pa.—Artificial limbs. N 53. 276

1297 Pingree, Luther F., Portland, Me.—Artificial limbs. N 53. 276

1298 Otto, F. G., & Sons, New York, N. Y.—Surgical instruments and orthopedical appliances. N 53. 276

1299 Bartlett, Butman, & Packer, Boston, Mass.—Trusses. N 51. 276

1300 Frees, C. A., New York, N. Y.—Artificial limbs. N 56. 276

1301 Palmer, B. F., Philadelphia, Pa.—New Palmer limbs with safety socket mechanism; new automatic system for universal motion, sound, power, etc. N 54. 276

1302 Seeley, I. B., Philadelphia, Pa.—Hard rubber trusses, abdominal supporters, pile instruments, elastic surgical hosiery, bandages, etc. N 53. 276

1303 McElroy, C. J., East Cambridge, Mass.—Glass and family syringes, feeding and drinking tubes, nipple shields, medicine droppers, etc. N 51. 276

1304 Miller, Jas. S., Philadelphia, Pa.—Trusses and braces. N 58. 276

1305 Rowand, John R., Philadelphia, Pa.—Gynæcological apparatus. N 51. 276

1306 Burrington, H. H., Providence, R. I.—Gynæcological apparatus. N 51. 276

1307 Allen & Johnson, Philadelphia, Pa.—Surgical and mechanical appliances, splints, operating chairs, crutches, supporters, and trusses. N 56. 276

1308 Bethell, John P., Philadelphia, Pa.—Surgical and gynæcological apparatus; artificial steel leg. N 57. 276

1309 Philadelphia Truss Co., Philadelphia, Pa.—Trusses, supporters, shoulder braces, elastic stockings, belts; combination truss and supporter. N 57. 276

1310 Gunning, Thos. B., New York, N. Y.—Fractured jaw and cleft palate appliances; teeth and regulating plates, etc. N 51. 276

1311 Spillman, Henry, New Orleans, La.—Trusses, supporters, and shoulder braces. N 58. 276

1312 Davis, James T., New York, N. Y.—Artificial human eyes. N 54. 276

1313 Teufel, J. J., Philadelphia, Pa. N 54.
a Surgical instruments. 276
b Dental instruments. 277

1314 Codman & Shurtleff, Boston, Mass. N 57.
a Surgical instruments, apparatus and appliances. 276
b Dental instruments, furniture, and materials; laboratory tools, etc. 277

1315 Justi, H. D., Philadelphia, Pa.—Artificial teeth, tools, and materials for their manufacture. N 54. 277

1316 Johnson & Lund, Philadelphia, Pa.—Artificial teeth, corundum wheels, gold foil, tooth powders, amalgams, dental instruments and materials. N 59. 277

1317 Wardle, Thos., Philadelphia, Pa.—Artificial teeth and models. N 58. 277

1318 Brown, E. Parmly, Flushing, N. Y.—Gold fillings in human teeth, dentists' cases, dental improvements. N 57. 277

1319 White, Samuel S., Philadelphia, Pa.—Artificial teeth, instruments, chairs, dental engines, stools, lathes, brackets, spittoons, gold foils, corundum wheels, etc. N 55. 277

1320 White, Chas. A., Philadelphia, Pa.—Celluloid apparatus and dental flasks, process of forming sets of artificial teeth, artificial dentures. N 56. 277

1321 Corfield, H. C., & Co., Philadelphia, Pa.—Artificial mineral teeth. N 58. 277

1322 Allen, J., & Son, New York, N. Y.—Artificial dentures. N 57. 277

1323 Abbey, Chas., & Sons, Philadelphia, Pa.—Dentists' gold foil. N 58. 277

1324 Bonwill, W. G. A., Philadelphia, Pa.—Electro-magnetic mallet for filling teeth, carving marble, chasing metals, and as an autographic printing press; dental chair and engine. N 59. 277

1325 Taylor, J. Hare, Philadelphia, Pa.—Tooth paste, etc. N 57. 277

1326 Wardle, S., Cincinnati, Ohio.—Specimens of dentistry. N 58. 277

1327 Neall, Danl. W., Camden, N. J.—Porcelain teeth. N 57. 277

1328 Swallow, J. E., Hagerstown, Md.—Dentistry; dental plates, obturators, splints, artificial nose, etc. N 58. 277

1329 Crowther, D. W., Hagerstown, Md.—Mechanical and operative dentistry. N 58. 277

1330 Scott, Quincy A., Pittsburgh, Pa.—Atmospheric disk for holding artificial teeth in the mouth, dental specimens, dentrifice. N 56. 277

1331 Ludwig, Schmidt, & Mohl, Houston, Texas.—Enamel; specimens of teeth. N 52. 277

1332 Valleau, William, jr., New York, N. Y.—Gold and silver leaf, gold and platina filling for dentists' use. N 57. 277

1333 Clark, H. F., Poughkeepsie, N. Y.—Artificial dentures. N 58. 277

1334 Cutter, Ephraim, Cambridge, Mass.—Adjustable chair for invalids. N 58. 278

Hardware, Edge Tools, Cutlery, Metallic Products.

1335 Collins & Co., New York, N. Y.—Cast steel tools; sledges. N 67. 280

1336 Elgin National Watch Co., Elgin, Ill.—Watchmakers' tools. P 67. 280

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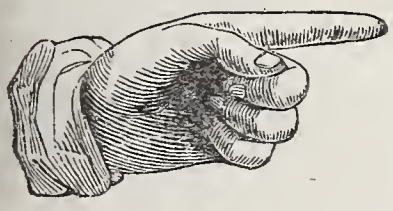

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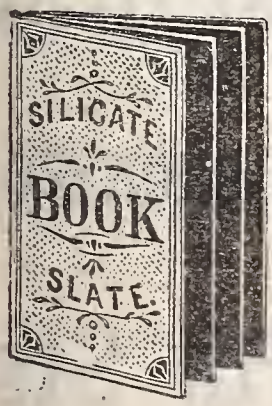

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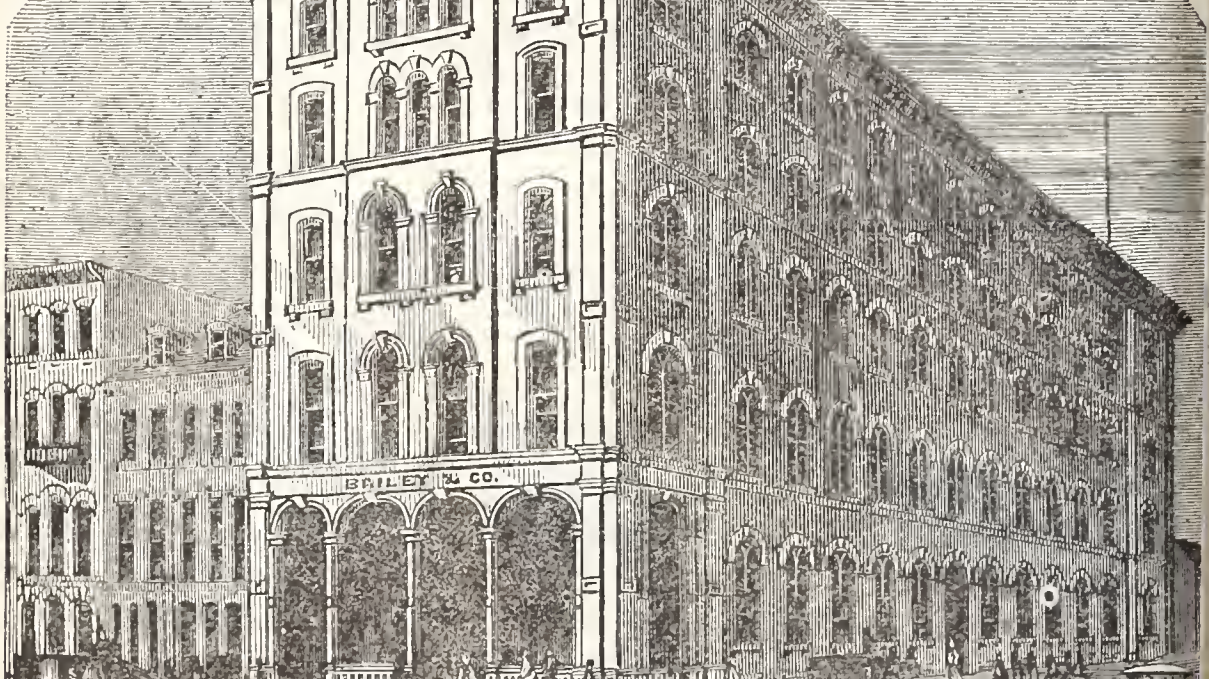

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Building Hardware, Castings, Hollowware.

1435 Baeder, Adamson, & Co., Philadelphia, Pa. N 68.
a Sand and emery paper, emery cloth, emery, corundum, flint. 282
b Glue. 652
c Curled hair. 669

1436 Harrison, W. H., & Bros., Philadelphia, Pa.—Low and elevated fire grates, fenders, fire places, etc. T 52. 283

1437 Dixon, Thos. S., & Sons, Philadelphia, Pa.—Grates, fenders, fireplace fittings, and gas logs. T 49. 283

1438 Jackson, Wm. H., & Co., New York, N. Y.—Grates, fenders, fireplaces, fire irons, and fancy coal boxes. N 67. 283

1439 Lalance & Grosjean Manufacturing Co., New York, N. Y.—Stamped iron culinary ware. T 68. 283

1440 Reyburn, Hunter, & Co., Philadelphia, Pa.—Weather vanes. N 62. 283

1441 Tin Plate Decorating Co., New York, N. Y.—Decorated tin plates, boxes, cans, etc. N 70. 283

1442 Miller & Krips, Philadelphia, Pa.—Plain and ornamental bronze; white bronze, brass, German silver, and zinc castings. P 72. 283

1443 Demuth, Wm., & Co., New York, N. Y.—Smokers' articles and show figures of metal and wood. P 69. 283

1444 Mott, J. L., Iron Works, New York, N. Y.—Fountain, zinc statuary, ornamental iron work for gardens and public parks. N 54. 283

1445 Rousseau, David, New York, N. Y.—Domestic bells. N 65. 283

1446 Woods, Sherwood, & Co., Lowell, Mass.—White lustral wire ware, plated wire, household and fancy goods. N 72. 283

1447 Ansonia Brass and Copper Co., Ansonia, Conn.—Brass kettles. N 57. 283

1448 Rohrman, J. Hall, & Son, Philadelphia, Pa.—Tea, coffee, and spice caddies; water coolers and decorated japanned tinware. P 70. 283

1449 Hussey, C. G., & Co., Pittsburgh, Pa.—Copper sheet, circle and bottoms; planished and ingot copper, copper lightning rods, sheet brass, brass kettles. N 72. 283

1450 Champion Fence Co., Kenton, Ohio.—Wrought and malleable iron fence and gate. (*Ohio State Building.*) 283

1451 Bevin Bros. Manufacturing Co., East Hampton, Conn. N 72.
a Bell metal kettles. 283
b Bells. 284

1452 United States Lock Co., Boston, Mass.—Locks. P 72. 284

1453 Yale Lock Manufacturing Co., Stamford, Conn.—Locks, ornamental bronze hardware, post office boxes. P 72. 284

1454 Stewart & Mattson, Philadelphia, Pa.—Building hardware, locks, door knobs, and trimmings. N 69. 284

1455 Nock, Geo. W., Philadelphia, Pa.—Locks and padlocks. N 70. 284

1456 Trenton Lock and Hardware Co., Philadelphia, Pa.—Patent lever and spring, with corrugated bolt door locks, latches, knobs, and other hardware. N 68. 284

1457 Shannon, J. B., Philadelphia, Pa.—Hand-made locks and building hardware. N 72. 284

1458 Wells & Hope Co., Philadelphia, Pa.—Metallic show cards and advertising signs, decorative glass printing, etc. P 72. 284

1459 Corbin, P., & F., New Britain, Conn.—House trimmings and miscellaneous hardware. N 72. 284

1460 American Stair Rod Co., New York, N. Y.—Stair rods and stair carpet fasteners. N 71. 284

1461 Stanley Works, New Britain, Conn.—Wrought iron butts, japanned, bronzed, and plated; hinges, door bolts, etc. P 71. 284

1462 Globe Nail Co., Boston, Mass.—Machine made horseshoe nails. N 71. 284

1463 Tuchfarber, F., & Co., Cincinnati, Ohio.—Enameled iron show cards. P 72. 284

1464 Wiler, Wm., Philadelphia, Pa.—Stair rods and plates. N 71. 284

1465 Walton, E. S., & Co., Philadelphia, Pa.—Lock hardware and fine bronze work. N 72. 284

1466 Amwake, Wm. F. H., & Bro., Lancaster city, Pa.—Padlocks, shoulder shackles. P 72. 284

1467 Dunbar, Hobart, & Whidden, South Abington, Mass.—Tacks, brads and nails, steel shanks, heel plates, etc. P 72. 284

1468 Hildebrand & Wolf, Philadelphia, Pa.—Trunk locks, padlocks, dead-latches, door springs, etc. P 69. 284

1469 Carr, Crawley, & Devlin, Philadelphia, Pa.—Building, cabinet, carriage, and saddlery hardware; malleable iron, brass, and steel castings. N 70. 284

1470 Halls Safe and Lock Co., Cincinnati, Ohio.—Bank and time locks. H 67. 284

1471 Whitaker & Skirm, Trenton, N. J.—Iron chains, chute and sheathing nails. N 69. 284

1472 Gould's, M., Sons, New York, N. Y.—Stair rods, step plates, dog collars, upholstery and trunk hardware. N 71. 284

1473 Morton, Thos., New York, N. Y.—Sash chain and attachments for suspending windows, doors, etc. T 49. 284

1474 Mallory, Wheeler, Co., New Haven, Conn.—Door locks and knobs, padlocks, etc. N 69. 284

1475 Gaylord Manufacturing Co., Chicopee, Mass.—Cabinet locks. N 70. 284

1476 Union Manufacturing Co., New Britain, Conn.—Plain and ornamental butt hinges. N 68. 284

1477 Mersereau, W. T., & I., Newark, N. J.—Stair rods and plates, dog collars and muzzles, bridle fronts, and upholsterers' hardware. N 71. 284

1478 American Lock Manufacturing Co., Cazenovia, N. Y.—Locks and latches. N 72. 284

1479 Bohannan, Wilson, Brooklyn, N. Y.—Brass spring padlocks and car locks. P 68. 284

1480 Union Steel Screw Co., Cleveland, Ohio.—Bessemer steel wood screws, with samples showing stages of manufacture. T 59. 284

1481 Clark & Co., Buffalo, N. Y.—Nickel-plated builders' hardware. N 71. 284

1482 Van Wagoner & Williams, New York, N. Y.—Hinges and door springs. N 70. 284

1483 Gong Bell Manufacturing Co., East Hampton, Conn.—Bells. P 72. 284

1484 Romer & Co., Newark, N. J.—Locks for railroad switches, cars, prisons, stores, etc. N 71. 284

1485 Cowell, J. J., & Co., Newark, N. J.—Builders' and trunk hardware. N 71. 284

1486 Middletown Tool Co., Middletown, Conn.—Plane irons, harness snaps, washer cutters, hitching chains, plane-makers' hardware, etc. P 71. 284

1487 Slaight, Thos., Newark, N. J.—Padlocks, brass and iron locks, and car trimmings. P 68. 284

1488 Van Arsdale, M. F., Newark, N. J.—Plumbers' brass and plated goods; faucets. P 68. 284

1489 Samuel, Wilkins, & Orcutt Manufacturing Co., New York, N. Y.—Burglar alarms, etc. P 68. 284

1490 Tiebout, W., & J., New York, N. Y.—Brass, galvanized, and ship chandlery hardware. H 68. 284

1491 Phœnix Lock Works, Newark, N. J.—Locks, small hardware, patented articles, keys, etc. P 68. 284

1492 Thorn, Stephen S., Newark, N. J.—Brass and iron wire ferrules for paint brushes; bonnet and insulating wire. N 69. 284

1493 Worrell Bank Lock Manufacturing Co., Philadelphia, Pa.—Bank lock. H 70. 284

1494 Oughcltree, Geo., Newark, N. J.—Bag and satchel frames. P 68. 284

1495 Winn, Henry, Shelburne Falls, Mass.—Key locks. N 70. 284

1496 Herring & Co., New York, N. Y.—Bank locks. H 69. 284

1497 Neuman, R., & Co., Newark, N. J.—Satchel and traveling bag frames and bag trimmings. P 71. 284

1498 Van Alen & Co., Northumberland, Pa.—Cut nails and spikes. T 66. 284

1499 Blake Bros. Hardware Co., New Haven, Conn.—Hardware for builders', cabinet makers', and carriage makers' use. P 69. 284

1500 Miller, D. K., Lock Co., Philadelphia, Pa.—Locks. P 70. 284

1501 Eagle Lock Co., Terryville, Conn. Trunk and cabinet locks. H 67. 284

1502 Judd, Hubert L., New York, N. Y.—Upholstery and fancy hardware. N 69. 284

1503 Coleman Eagle Bolt Works, Philadelphia, Pa.—Carriage bolts, nuts, and axle clips. P 71. 284

1504 Meeker, D. M., & Son, Newark, N. J.—Iron, bronze, and German silver castings. N 71. 284

1505 Miller, Edward, & Co., Meriden, Conn.—Tinners' hardware. N 48. 284

1506 Norwalk Lock Co., South Norwalk, Conn.—Door locks, knobs, padlocks, and builders' hardware. N 70. 284

1507 Terwilliger & Co., New York, N. Y.—Safe locks. H 72. 284

1508 Miller, Samuel, Gratis Post Office, Ohio.—Bank, safe, and permutation locks, combination door lock and latch, hame fasteners. N 70. 284

1509 Wheeling Hinge Co., Wheeling, W. Va.—Hinges, butts, wrought goods, and washers. N 68. 284

1510 Hiler, S., New York, N. Y.—Glass, porcelain, and mineral door knobs and mountings. N 71. 284

1511 Vanduzen & Tift, Cincinnati, Ohio.—Bells. T 53. 284

1512 American Screw Co., Providence, R. I.—Gimlet pointed screws of iron, brass, and steel; coach, hand rail, and machine screws; rivets; stove and tire bolts. P 69. 284

1513 Branford Lock Works, New York, N. Y.—Rim and mortise door locks and latches, brass and steel keys, door knobs, lock furniture. P 69. 284

1514 Easton Lock Works, Easton, Pa.—Rim and mortise locks and latches; safety locks and night latches. N 72. 284

1515 Lehigh Shovel Works, Bethlehem, Pa.—Shovel handle and blade. T 71. 284

1516 Wallace & Sons, Ansonia, Conn.—Brass and copper wire, rivets, and burrs; brass pins. P 68. 284

1517 Evans, F. H., Brooklyn, N. Y.—Expansion bolts and screw fastenings; photographs of other manufactures. P 69. 284

1518 American Tack Co., Fairhaven, Mass.—Tacks and nails. N 72. 284

1519 Field, A., & Sons, Taunton, Mass.—Tacks, brads, nails, etc. P 68. 284

1520 Valentine & Butler Safe & Lock Co., New York, N. Y.—Safe locks. H 70. 284

1521 Lewis, Oliver, & Phillips, Pittsburgh, Pa.—Wagon and heavy hardware, fence pickets, etc. T 64. 284

1522 New Britain Lock Co., New Britain, Conn.—Key register; dial, bank, safe, and time locks. N 72. 284

1523 American Wire & Screw Nail Co., Covington, Ky.—Wire and wire screw nails. P 71. 284

1524 Buckman, Ira, Brooklyn, N. Y.—Torsion spring hinge. N 68. 284

1525 Mosler Safe and Lock Co., Cincinnati, Ohio.—Safe locks. H 69. 284

1526 Turner & Seymour Manufacturing Co., Waleottville, Conn.—Brass and iron upholstery goods and hardware, and notion goods. N 68. 284

1527 Sargent & Greenleaf, Rochester, N. Y.—Chronometer, bank, safe, and flat key locks. H 72. 284

1528 Wilcox, Wm., Manufacturing Co., Middletown, Conn.—Padlocks, plate locks, and keys. N 71. 284

1529 King, J. M., & Co., Waterford, N. Y.—Stocks and dies, plug and taper taps, pliers, etc. N 71. 284

1530 Keyless Padlock Co., New York, N. Y.—Keyless padlocks. N 70. 284

1531 Lyon, Sylvanus, New York, N. Y.—Locks. N 72. 284

1532 Johns, H. W., New York, N. Y.—Tacks, etc. P 47. 284

1533 Barton, W. E., East Hampton, Conn.—Bells. N 71. 284

1534 Clarke Combination Lock Co., Baltimore, Md.—Combination keyless locks. P 68. 284

1535 Williamson, Wm., and Orbeton, S., Boston, Mass.—Screw braces and hinges. N 68. 284

Fabrics of Vegetable, Animal, or Mineral Materials.

1536 Glendale Elastic Fabrics Co., Easthampton, Mass.—Woven and braided elastic rubber fabrics. F 68. 285

1537 Easthampton Rubber Thread Co., Easthampton, Mass.—India rubber thread and rubber in process of manufacture. F 68. 285

1538 Willis, Aug. L., Philadelphia, Pa.—Rubber rails for tracks. H 71. 285

1539 Sellers, Chas. P., Philadelphia, Pa.—Corn brooms and whisks. T 46. 286

1540 Reynolds, C. T., & Co., New York, N. Y.—Brushes. P 42½. 286

1541 Leiner, Moritz, New York, N. Y.—Brushes. T 46. 286

1542 Lovell, G. H., & M. F., Philadelphia, Pa.—Ear brush. T 50. 286

1543 Miles, Bros., & Co., New York, N. Y.—Brushes. N 69. 286

1544 Grand Rapids Brush Co., Grand Rapids, Mich.—Brushes. N 72. 286

1545 Clinton, E., & Co., Philadelphia, Pa.—Brushes. N 66. 286

1546 Bowman, C. A., & Bro., Madison, Ind.—Clothes brushes made of broom corn. T 46. 286

1547 Johns, H. W., New York, N. Y.—Brushes. P 47. 286

1548 Florence Manufacturing Co., Florence, Mass.—Hair brushes. B 70. 286

1549 Richmond, Henry, New York, N. Y.—Brushes. N 68. 286

1550 Bailey, John T., & Co., Philadelphia, Pa.—Rope and twines. B 68. 287

1551 Baumgardner, Woodward, & Co., Philadelphia, Pa.—Cordage and clothes lines, tarred yarns, hemp packing. B 68. 287

1552 Vyse, Robt. H., Brooklyn, N. Y.—Rawhide rope, sash cord, and round belting. B 68. 287

1553 Hooper, Wm. E., & Sons, Baltimore, Md.—Cotton rope, twine, and netting. D 78. 287

1554 Hart, A. H., & Co., New York, N. Y.—Twines, shoe threads, etc. B 68. 287

1555 Wall's, William, Sons, New York, N. Y.—Ships' rigging; rope and cordage. D 78. 287

1556 Tucker, Carter, & Co., New York, N. Y.—Wire and manilla ropes. B 69. 287

1557 Hart, Clarence A., Philadelphia, Pa.—Painted silk banners. P 64. 288

1558 Lilley, M. C., & Co., Columbus, Ohio.—Masonic goods and society supplies. P 65. 288

1559 Wilson, J. H., Philadelphia, Pa.—Regalias, flags, and banners. F 70. 288

1560 New England Bunting Co., Lowell, Mass.—Bunting. B 75. 288

1561 Salisbury & Co., New York, N. Y.—Muslin flags; engraving, designing, lithographing, and printing. H 77. 288

1562 Piton, Camille, Philadelphia, Pa.—Trophies representing America, Europe, Asia, and Africa. (*Nave and Centre Transept.*) 288

1563 Tremain, Chas., Manlius, N. Y.—Paper barrels; cheese and fruit packages. T 57. 289

1564 Trasel, Edwd. G., New York, N. Y.—Papier maché household ware, chamber sets, pails, cuspadores, etc. P 64. 289

1565 Wakefield Rattan Co., Boston, Mass.—Rattan baskets. T 57. 289

1566 Allen, Jas. M., Co., New York, N. Y.—Druggists' turned wood boxes. T 43. 289

1567 Waters, E., & Sons, Troy, N. Y.—Boat barrels, camp stools, seats, packages for volatile liquids, etc., made of paper. B 73. 289

1568 Jennings Bros., New York, N. Y.—Japanese paper ware. T 68. 289

1569 Preston & Merrill, Boston, Mass.—Wooden boxes. P 48. 289

1570 Dorman Manufacturing Co., New York, N. Y.—Baskets, urns, carriage bodies, etc. P 59. 289

1571 Paxson, Comfort, & Co., Philadelphia, Pa.—Burial robes and dresses; casket trimmings. B 73. 290

1572 Smith, Wm. M., West Meriden, Conn.—Casket trimmings, handles, name plates, and ornaments. N 43. 290

1573 Rogers, C., & Bros., West Meriden, Conn.—Gold and silver plated coffin and casket trimmings. F 72. 290

1574 Chase, F., & P. F., Penn Galvanic Works, Philadelphia, Pa.—Galvanized iron goods, sheet iron, water pipe, boilers, hardware, shipsmithing, railings; bar, hoop, and chain iron. P 68. 291

1575 Straus, J. E., & Co., Philadelphia, Pa.—Galvanized, wrought, and cast iron work. P 71. 291

1576 Wilson, Parsons, & Co., Bridgeport, Conn.—Zinc monuments and shafts for cemeteries. (*Outside.*) 291

1577 Philadelphia Galvanizing Co., Philadelphia, Pa.—Galvanized sheet iron pipe, railing, wirework, chairs, boilers, sinks, coal hods, etc. P 69. 291

1578 Kittredge Cornice and Ornament Co., Salem, Ohio.—Sheet metal cornices, doors, shutters, and pavilion; architectural ornaments, light wrought iron work. (*Outside.*) 291

1579 Falstrom & Tomqvist, Passaic city, N. J.—Galvanized iron cornice and ornamental sheet iron work for buildings. P 68. 291

1580 Philadelphia Architectural Iron Co., Philadelphia, Pa.—Galvanized iron and sheet zinc gate entrance. P 70. 291

1581 McCullough Iron Co., Philadelphia, Pa.—Galvanized sheet iron. P 70. 291

1582 Brown & Owen, Philadelphia, Pa.—Cemetery inclosure, ornamental iron work, and wrought iron pipe. (*Outside.*) 291

1583 Cornell, J. B., & J. M., New York, N. Y.—Cast and wrought iron work for buildings and bridges, girders, columns, stairs, railings, lampposts. P 70. 291

1584 Marshall Brothers & Co., Philadelphia, Pa.—Galvanized and leaded sheet iron work. P 71 and *Outside.* 291

1585 Zinc Roofing and Ornamenting Works, Chicago, Ill.—Ornaments in pressed and cast zinc, brass, and copper; zinc statues, emblematic signs, etc. P 69. 291

1586 Buringer Brothers, Dayton, Ohio.—Ohio coat of arms of galvanized iron. (*In gable of Ohio State Building.*) 291

Carriages, Vehicles, and Accessories.

1587 Blake Bros. Hardware Co., New Haven, Conn.—Trucks for moving open barrels and kegs. P 69. 294

1588 Newichawanick Co., South Berwick, Me.—Horse blankets and goods for horse clothing. R 78. 296

GREAT BRITAIN.

(North of Nave, Columns 23 to 38.)

Chemicals, Oils, Soap, Candles.

Chemical Manufactures.

1 **Hutchinson, John, & Co., Widnes,** Lancashire.—Soda ash, soda crystals, caustic soda, bicarbonate of soda, salt cake, bleaching powder, and sulphur recovered from vat waste. 200

2 **Corbett, John, Stoke Prior Salt** Works, Worcestershire.—Refined salt. 200

3 **Richards, Kearne, & Gasquoine, Malkins** Bank Alkali Works, Sandbach, Cheshire.—Brine, sulphate of ammonia, soda ash, bicarbonate of soda. 200

4 **Gaskell, Deacon, & Co., Widnes,** Lancashire.—Carbonated soda ash, and refined alkali, bleaching powder, soda crystals, bicarbonate of soda, and chloride of calcium. 200

5 **Brunner, Mond, & Co., Northwich,** Cheshire.—Alkali and bicarbonate of soda. 200

6 **The Desoto Alkali Co. (limited),** Widnes, Lancashire.—Caustic soda, and black ash or ball soda. 200

7 **Weldon, Walter, Merton, London.**—Samples and models of apparatus, illustrative of the manufacture of chlorine. 200

8 **Runcorn Soap and Alkali Co.** (limited), Liverpool.—Bleaching powder, soda ash, crystals of soda, caustic soda, and refined resin. 200

9 **Muspratt Brothers, & Huntley,** Liverpool.—Soda ash, caustic soda, bleaching powder, soda crystals, and bicarbonate of soda. 200

10 **Muspratt, James, & Sons, Liverpool.**—Soda ash, cream caustic soda, bleaching powder, chlorate of potash, salt cake, and brimstone. 200

11 **Tyne Vale Chemical Co., Northumberland** Works, Newcastle-on-Tyne.—Pure and methylated ether, pure and methylated chloroform, sweet spirit of nitre, pure and commercial chemicals. 200

12 **Spence, Peter, Manchester.**—Crystallized alum, in block and crystals, and a new alumino-ferric compound for precipitating sewage and for paper making. 200

13 **Higgin, Thomas, & Co., Liverpool.**—Salt. 200

14 **The Newcastle Chemical Works** Co. (limited), Newcastle-on-Tyne.—Soda ash, alkali, bleaching powder, crystals and bicarbonate of soda, caustic soda, chloride of calcium. 200

15 **White, John & James, Shawfield** Works, Glasgow.—Bichromate of potash. 200

16 **Liver Alkali Works Co. (limited),** Liverpool.—Caustic soda. 200

17 **Young, James, Kelly, Wemyss Bay,** N. B.—Illustrations of manufacture of carbonate of soda, chlorate of potash, products from petroleum, coal, and shale, preservation of iron ships. 200

18 **Greenbank Alkali Co., St. Helen's,** Lancashire.—Chemical products, pure caustic soda, chlorate potash. 200

19 **Liver Alkali Works Co. (limited),** Liverpool.—Caustic soda. 200

20 **Jennings, T., Brookfield Chemical** Works, Cork.—Carbonate and calcined magnesia. 200

21 **Calvert, F. C., & Co., Bradford,** Manchester.
- *a* Carbolic and cresylic acids and derivatives. 200
- *b* Carbolic acid soaps. 201

22 **Parkinson Bros., Burnley.**—Baking powder. 200

23 **Morson & Son, London, W. C.**—General chemicals and specialties, creasote, pepsine, gelatine, etc. 200

24 **Allen & Hanburys, London.**—Paté de jujube and analogous articles. 200

25 **Gerrard, Alfred William, London.**—Pharmaceutical preparations. 200

26 **Kinmond & Co., Leamington.**—Fluid magnesia, and effervescing fluid citrate of magnesia. 200

27 **Wyndham, F., & Co., London.**—"Esprit des Œufs" (spirit of eggs), a medicinal compound. *(In Agricultural Hall.)* 200

28 **Price's Patent Candle Co.** (limited), Belmont Works, London.—Candles, night-lights, glycerine, fatty acids, machinery oils; toilet, household, and mill soaps, glycerine, paraffine, stearine, and tapers. 201

29 **Field, J. C., & J., London.**—Candles, toilet soaps, beeswax, and refined yellow wax, white wax, dyers' soaps, sealing wax, and fancy ornamental candles. 201

30 **Pears, A., & F., Lanadron Soap** Works, Isleworth, near London.—Transparent soap. 201

31 **Marrison, Robt. D., Norwich,** Norfolk.—Soap powder. 201

32 **Cohné, Sigismund, London.**—Chemical and medical soaps. 201

33 **Craig & Rose, Caledonian Oil and** Color Works, Edinburgh.
- *a* Oils. 201
- *b* Paints and colors. 202

Oils, Pigments, Ink, Perfumery, Explosives, Ceramics.

34 Williams, Miles, Britannia Varnish Works, Wigan, Lancashire.
a Gas carburetter and drawings; improvement in manufacture of gas and liquid fuel. 201
b Varnishes, varnish paints, enamels, lacquers, and specimens of work. 202

35 Hickisson, Mrs. M. A., London.—Marking ink, pens, linen stretcher, and framed specimens. 202

36 Turner, Chas., & Son, London.—Varnishes, fine colors, gums. 202

37 Adams, John, Victoria Park, Sheffield.—Polishes for furniture, brass, and plate. 202

38 Lyons, William, Manchester.—Writing and copying fluids and inks, marking ink, ink powders, paper dye tablets. 202

39 Bowman, Charles, London.—Solid ink, stencil plates, stencil brushes, etc. 202

40 Rawlins & Son, Brook Works, Prescot.—Ultramarine and smalts, with raw materials. 202

41 Chambers, T. F., Hull.—Black varnish. 202

42 Johnson Brothers, Hull.—Colors, varnishes, machinery oils, and locomotive and anti-friction greases. 202

43 Sands Brothers, & Co., Salford Chemical Works, Manchester.—Writing inks, aniline dyes, and blacking inks for leather work. 202

44 Rowney, George, & Co., London.—Pigments, colors, varnishes, artists' materials. 202

45 Storer, David, & Sons, Glasgow.—Colors, pigments, and wood stains; Venetian, Indian, and other reds; drop black, greens, and other pigment colors. 262

46 Cooper & Co., London.—Writing register, and japan inks, copying and fluid ink; red, scarlet, blue, and violet inks. 202

47 Silicate Paint Company, Liverpool.—Silicate paints and colors; petrifying liquid for damp walls; enameling and anti-fouling paints; cement for steam joints, anti-incrustation fluid, nitre killer, etc. 202

48 Blackwood, John, & Co., London.—Writing, copying, and indelible marking inks. 202

49 Mackay, John, Edinburgh.
a Spirit varnishes and polishes for coating wood of all colors, white, mahogany, oak, or ebony. 202
b Fluid flavoring essences from spices, fruits, and vegetables. 203

50 Stephens, Henry Charles, London.—Writing fluids and copying inks, ink powders, machine ruling and indorsing inks; stains for wood. 202

51 Crown Perfumery Company, London.—Perfumes and toilet requisites. 203

52 Sturges Montserrat Company (limited), Birmingham.—West India goods. 203

53 Atkinson, J., & E., London.—Perfumery and toilet articles. 203

54 Jaap, John, Glasgow.—Flavoring essences and other preparations. 203

55 Low, Son, & Haydon, London.—Perfume extracts, toilet soaps. 203

56 Perks, Samuel, Hitchin Herts.—Essential oil of lavender, extract lavender flowers, etc. 203

57 Thiellay, Eugene Henry, London.—Hair tincture, dyes, and bleaching liquid, tonics, and cultivators. 203

58 Rimmel, Eugene, London.—Perfumery and toilet articles; perfume vaporizers, etc. 203

59 Evans, Sons, & Co., Liverpool, and Evans, Lescher, & Evans, London.—Perfumery. 203

60 Bryant & May, Fairfield Works, London.—Safety matches, wax vestas and vesuvians, decorated metal and other boxes. 204

61 Eley Brothers (limited), London.—Paper and metal cartridge cases (empty), sporting and military percussion caps, gun waddings. 204

62 Bickford, Smith, & Co., Tuckingmill, Cornwall.—Safety fuses for blasting operations. 204

63 Pigou, Wilks, & Laurence (limited), London.—Military, sporting, African, and mining powders of every description. 204

64 Lacey, Richard George, Coast Guard Station, Leigh, Essex.—Rocket apparatus for throwing lines from one ship to another; alarm signal box for ships; fisherman's block. 204

65 Gage, Thomas, London.—Rockets, and tube for firing; danger signal and distance plate; rockets and hand lights, fired without the aid of heat, light, or fire; friction tubes and reflectors; fog signals for railways. 205

Ceramics—Pottery, Porcelain, Glass, etc.

66 Peake, Thomas, The Tileries, Tunstall, Staffordshire.—Paving and facing bricks; ridge, roofing, and flooring tiles; ornamental tiles for garden borders, skirtings, and mural decorations. 206

67 Hamblet, Joseph, Piercy Blue Brick Works, West Bromwich, Staffordshire.—Vitrified blue bricks, copings, plinths, stable floor bricks, quarries, ridges, roofing tiles, and every variety of terra metallic pavings. 206

68 Wood & Ivery, Albion Brick Works, West Bromwich, Staffordshire.—Blue terra metallic building and fancy bricks; mouldings, copings, footpath paving bricks, grooved stable floor bricks, terminals; terra metallic vases, trusses, etc. 206

69 Johnson & Co., Ditchling Potteries, Sussex.—Terra cotta as applied to building purposes; terminals, vases, ridge tiles, and general terra cotta work. 206

70 Matthews, John, Royal Pottery, Weston-super-Mare, Somerset.—Terra cotta vases, fountains, and baskets; garden pottery, etc. 206

71 Watcombe Terra Cotta Company (limited), Watcombe, South Devon.—Terra cotta, painted vases and plaques, statuettes, etc.; frescoes for mural adornment, and architectural terra cotta specimens. 206

72 Brooke, Edward, & Sons, Fieldhouse Fire Clay Works, Huddersfield, Yorkshire.
a Sanitary tubes. 206
b Fire bricks and clay for furnaces; sewer ventilators; silica fire bricks for furnaces. 207

Bricks, Stoneware, Terra Cotta, Porcelain, Glass.

73 **Stiff, James, & Sons, London.**
a Terra cotta jars, bottles, tiles, vases, medallions, water filters, refrigerators, air bricks, stoves, and stove linings, tablets with figures in bas-relief, figures for church and other decorations, etc. 206
b Stoneware jugs, etc., in decorated Lambeth ware, chemical apparatus, sanitary ware, sewer traps, drain pipes, etc. 210

74 **Jennings, George, London.**—Appliances for ventilation, terra cotta bricks, etc.; stoneware drain pipes, gulley traps. 206

75 **Holland, William Thomas, Yrisymudw,** South Wales.—Ceramic goods, earthenware or faience, in table, tea, toilet services, etc.; architectural terra cotta, ornamental bricks and tiles, fire bricks and fireproof cements, sanitary pipes and ware. 206

76 **Lindsay & Anderson, Lilliehill Fire** Clay and Terra Cotta Works, Dunfermline, Scotland.—Fountain in terra cotta, bust and pedestal of Sir Walter Scott, statuette of Sir James Y. Simpson, nymphs at fountain, garden vases and pedestals, gas stove in terra cotta, sewage pipes and sanitary appliances, fire clay bricks, chimney cans, collection of terra cotta. 206

77 **Doulton, Hy., & Co., London.**—Terra cotta goods for architectural and horticultural purposes; sanitary pottery in salt-glazed stoneware, queensware; colossal group of America, by John Bell, on pedestal, ornamented with art pottery; vitrified metallic bricks and pavings. 206

78 **Brownhills Pottery Co., Tunstall.**—Earthenware, dinner, dessert, and toilet ware, jugs, etc.; enameled vases, etc.; terra cotta and black glazed ware, floor and roof tiles, ridge ornaments, etc. 206

79 **Dean, Henry, Rugby, Warwickshire.**—Stoneware drain traps and yard gullies of different patterns. 206

80 **Tinworth, George, London.**—Panels in terra cotta, illustrative of Scripture, and articles in colored stoneware. 206

81 **Harper & Moores, Stourbridge.**—Fire clays, prepared clays, fire bricks, crucibles, melting pots, bricks for smelting furnaces, etc. 207

82 **Cliff, John, Runcorn, near Liverpool.**—Fire brick. 207

83 **Patent Plumbago Crucible Co.,** Battersea Works, London.—Portable furnaces, dental work, etc.; skittle pots for glass melting; crucibles for jewelers, assayers, dentists, etc.; founders' blacking 208

84 **Price, J., & C., & Brothers, Bristol.**—Ale bottles, spirit jars, barrels, preserve jars, water filters, feet warmers, etc.; stoneware. 207

85 **Bates, Walker, & Co., Dale Hall** Works, Burslem.—Dinner, dessert, toilet, and tea ware; general earthenware goods; ironmongers', artists', and gardenware; stick, parasol, and umbrella handles; spirit barrels, signboard letters, porcelain slates, menu tablets, etc. 207

86 **Doulton & Co., London.**—Mantel-pieces, stoves, hearth, and fenders of clay; crucibles, furnaces, muffles, in fire clay and plumbago. 207

87 **King Brothers, Stourbridge.**—Fire brick, gas retorts, etc. 208

88 **Reynolds, John George, London.**—Pipe clays and pipes, terra cotta and fire clays; gas stoves in terra cotta, backs and cheeks for close stoves, fuel economizers, gas shades, fire bricks, water paint. 207

89 **Davidson, T., jr., & Co., Caledonian** Pipe Works, Glasgow.—Clay tobacco pipes; white clay pipes, fitted with fancy mouthpieces and cases. 207

90 **The Campbell Brick and Tile Co.,** Stoke-upon-Trent.—Encaustic, geometric, majolica, and all kinds of glazed tiles and mosaics, bricks, and roofings. 208

91 **Craven, Dunill, & Co., Jackfield** Works, near Ironbridge, Shropshire.—Tiles for pavements and hearths; ornamental splays for fireplaces; tiles for walls and furniture. 208

92 **Minton's China Works, Stoke-on-**Trent.—Enameled tiles. 208

93 **Maw & Co., Benthall Works, Broseley,** Shropshire.—Geometrical mosaic, encaustic, and majolica tiles, architectural majolica and terra cotta. 208

94 **Minton, Hollins, & Co., Stoke-on-**Trent.—Tiles, tile-mosaic, tile fender, chimney piece, fire grate, flower vases, etc. 208

95 **Stanley Bros., Midland Tile Works,** Nuneaton, Warwickshire.—Perforated tiles for malt kiln floors. 208

96 **Brown-Westhead, T. C., Moore, &** Co., Cauldon Place, Staffordshire Potteries.—China, earthenware, statuary porcelain and majolica ware; dinner, dessert, tea, and toilet services; druggists' and perfumers' goods, tiles, and sanitary ware. 208

97 **Daniell, A. B., & Son, London.**—Porcelain and pottery, ornamental vases, candelabra, etc.; dinner, dessert, tea, and coffee services; toilette services, fountains, jardinières, garden seats, vases, etc. 210

98 **Powell & Bishop, Hanley, Staffordshire.**—Dinner, dessert, tea, and toilet services, white granite, etc. 210

99 **Brownfield, Wm., & Son, Cobridge,** Staffordshire Potteries.—China, majolica, ironstone china, parian, earthenware, stoneware, etc. 210

100 **Doulton & Watts, Lambeth Pot**tery, London.—Tile decorations, stoneware for domestic and manufacturing purposes, and chemical works; pulpit and font, in fine art pottery faience. 210

101 **Mortlock, John, Pottery Galleries,** London.
a Decorative art pottery. 211
b Porcelain. 213

102 **Edwards, John, Fenton, Staffordshire.**—Ironstone china and porcelaine de terre tea, dinner, toilet, and jug services. 213

103 **Bailey, W., & J. A., Alloa, Scotland.**—Rockingham earthenware teapots. 213

104 **Hetley, J., & Co., London.**—Glass shades; glass used for photographic, building, and horticultural purposes. 214

105 **Chance Bros., & Co., Glass Works,** near Birmingham.—Glass for optical instruments. 214

106 **Kilner Bros., London.**—Glass bottles and glass for useful and scientific applications. 215

Glass, Furniture, Lighting and Heating Apparatus.

107 Aire and Calder Glass Bottle Co., London.—Glass bottles, combination stoppers, packing cases, corks, straw envelopes. 215

108 Green, James, & Nephew, Thames Cut Glass Works, London.—Table glass, cut and engraved table decorations and flower stands, glass chandeliers, and lustre candlesticks. 216

109 Millar, John, & Co., Edinburgh.—Engraved and cut glass. 216

Furniture and Objects of General Use in Construction and in Dwellings.

110 Cox & Sons, London.—Chimney piece, embroidered mantel board, ebonized corner cupboard, carved oak furniture, bronze ornament, stained glass church window, wrought iron pulpit body, lecterns, church plate, wrought iron and brass work, art tiles and plaques; the challenge prize of the National Musical Union, etc. 217

111 Wright & Mansfield, London.—Cabinet furniture of the 18th century. 217

112 Hems, Harry, Exeter.—Alabaster statue; carved oak chest made out of ancient beams (nearly 600 years old) from the choir of Salisbury cathedral. 217

113 Peyton & Peyton, Bordesley Works, Birmingham.—Metallic bedsteads. 217

114 Morton, W. Scott, & Co., Art Furniture Works, Edinburgh.—Decorative furniture, ebonized and decorated cabinet, sideboard. 217

115 Hart, Son, Peard, & Co., London.—Artistic metal work (chiefly for ecclesiastical purposes), gas fixtures, stove-grates, etc. 217

116 Shoolbred, James, & Co., London.—Furniture in the Jacobean and Queen Anne styles; bedroom furniture in the Anglo-Indian style; curtains and carpets. 217

117 Barnard, Bradley, London.—Furniture and hammock, bassinettes, baskets, etc. 217

118 Cooper & Holt, London.—Furniture, sideboard, portion of bedroom suite, decorative drawing-room furniture. 217

119 Phipson, Miss Emma, Monk Sherborne, Basingstoke, Hants.—Sideboard, ladies' work table, dressing glass, and candlesticks. 217

120 Ward & Co., London.—Bear arranged as dumb waiter to hold tray and lamp. 217

121 Schildberg, H., & Co., London.—Writing desks, ornamental fountains. 217

122 Arthur, Frederick, London.—Cabinet work and fittings for Royal School of Art needlework exhibits. 217

123 Wethered, Edwin Robert, Woolwich, Kent.—Hammock, friction pulley block exhibited as a fire escape. 217

124 Matthew, Edward, London.—Stained glass windows, mural brasses, decorative tiles. 217

125 Barnard, Bishop, & Barnards, Norfolk Iron Works, Norwich.—Ornamental wrought and cast iron gates, palisade, pavilions, etc., lawn mowers, wire netting, hose reels, garden rollers, iron garden requisites, stoves, mangles, etc. 217

126 Singer, J. W., & Son, Frome, Somerset.—Artistic metal work, altar crosses and candlesticks, alms dishes, and mural brass plates for churches. 217

127 Knight, Miss Mary, London.—Bedstead. 217

128 Jeffreys, Charles, London.—Show cases, cut glass mirror, leather traveling and jewel cases, bronzed shop fittings, show stands, reflecting lamps, morocco and velvet cases. 217

129 Royal School of Art Needlework, London.—Artistic needlework and embroidery in applique, crewels, and silk. 217

130 Elkington & Co., London.—Works of art in gold, silver, and other metals; solid silver and electro-silver plate for domestic use; decorative table plate relieved with electro-gold and oxidized silver; antique art treasures in metal from the South Kensington Museum; Cloisonné and Champlevé enamels on silver and copper; bronze statuary. 217

131 Collinson & Lock, London.—Furniture, wall papers, and textile fabrics in the old English style. 217

132 Storer, Joseph, Stamford Brook, Hammersmith.—Table fountains. 218

133 Bailey, W., & J. A., Ailoa, Scotland.—Engraved table glass. 218

134 MacIntosh, James, London.—Decorative doors and panels; imitations of woods and marbles, decorative designs and paperhanging. 219

135 Lafargue, Paul, London.—Engravings on metals and marbles, plaques for cabinet and artistic furniture, interior decoration, etc. 219

136 Kerr, Edward, Dublin.
a Process of decorating glass for household and ecclesiastical purposes. 219
b Stable lamps. 223

137 Zobel, Charles Ferdinand Julius, London.—Hammer work in metal; bouquet of flowers hammered, in copper and zinc; architectural models and aloe plant hammered in zinc; conjuring apparatus in metal. 219

138 Engert, A. C., & Co., London.—Ornamental mouldings for picture frames and architectural decorations. 220

139 Hieronimus, W., London.—Frame mouldings, window cornices, decorating mouldings, etc. 220

140 Heaps & Wheatley, Brotherton, Yorkshire.—Oil cooking stove, gas stove, water boilers, etc. 222

141 Gardner, John, & Sons, London.—Lamps, Arctic expedition lamps, traveling canteens. 222

142 Clough, Samuel Wesley, Stanningley, near Leeds.—Yorkshire grates, with ovens for baking or roasting; kitchen grate, room grate specially adapted for railway companies' offices, waiting rooms, etc. 222

143 Gregory, James, Lincoln.—Cooking apparatus, lime trough, plunger, mortar temperer, fire escapes, screw hoist, and continuous screw. 222

144 Steel & Garland, Wharncliffe Works, Sheffield.—Steel grates, with porcelain tiles; fenders, encaustic tile hearths, stoves with china tiles, fire irons, etc. 222

145 Smart, Walter, Buckhurst Hill, Essex.—Sub-fire oven. 222

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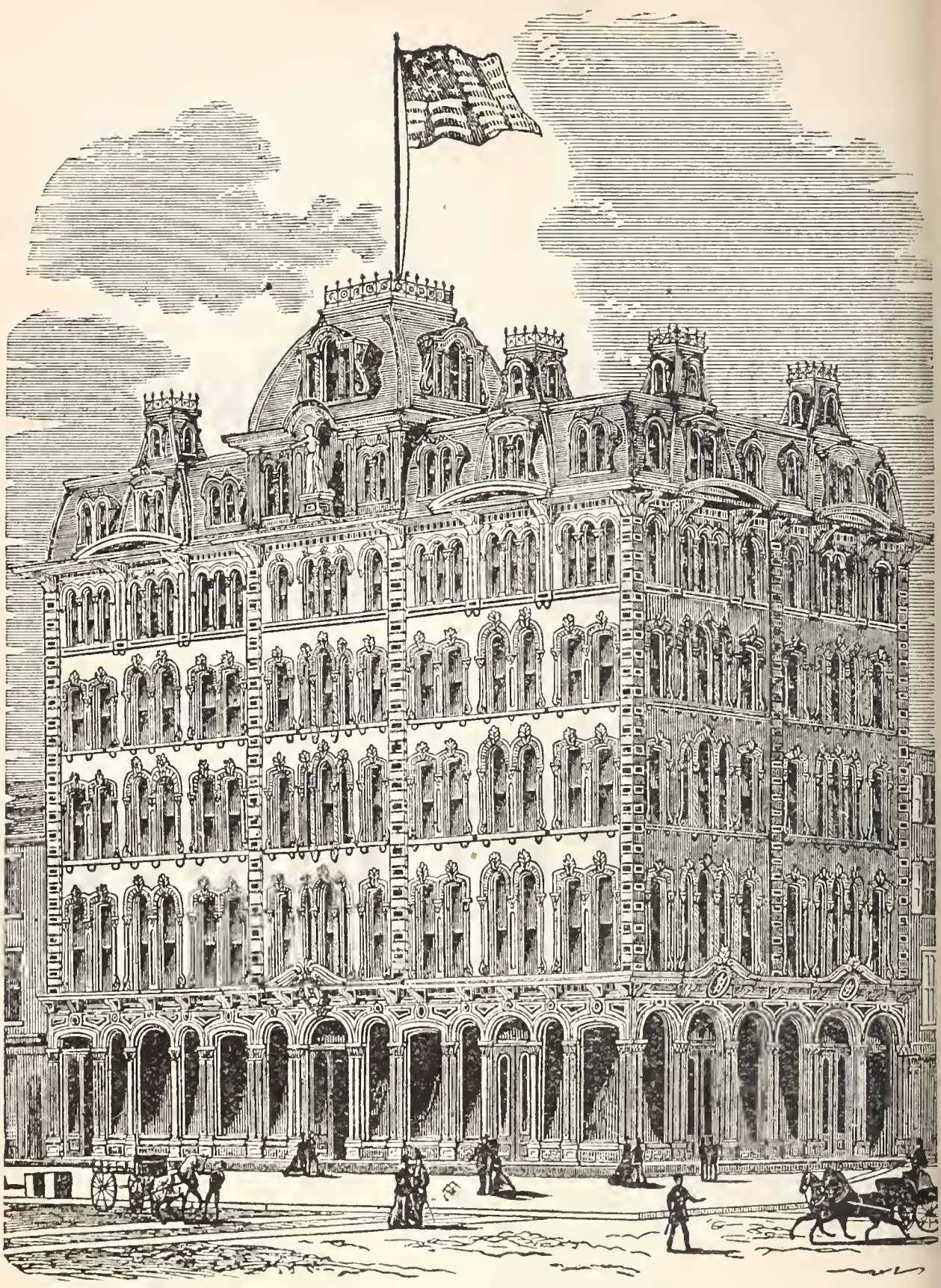

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Heating and Lighting Apparatus, Woven Wire, Woolen, Cotton, Linen.

146 Feetham, Mark, & Co., London.—Stoves and grates with appliances; decorated china for fireplaces. 222

147 Perkins, A. M., & Son, London.—Steam oven for marine use. (*In Machinery Hall.*) 222

148 Thornton, Ebenezer, Bradford, Yorkshire.—Cooking stove for gas or solid fuel. 222

149 Kimpton, Thomas, London.—Water waste preventer, gas regulator, pneumatic sound communicator. 223

150 Field, J. C., & J., London.—Night lights and candle guard. 223

151 Partridge & Co., Birmingham.—Brass gaseliers, brackets, etc. 223

152 Skelton & Co., London.—Street lamp, with reflectors. 223

153 Busse, G., & Co., London.—Water filters and cement. 224

154 Pullinger, Colin, Selsey, near Chichester, Sussex.—Sifter, cask stand, tapping mallet, sulphur blower, mouse traps, eel spear, mortising chisels, planes, bradawl, and brace. 224

155 Jennings, George, London.—Lavatories, baths, closets, urinals, and latrines; water meters and water waste preventors.

156 Bullivant, Thomas, London.—Sash window. 227

157 Edwards, G., London.—Sliding window sashes and frame. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

158 Brown, J. B., & Co., London.—Galvanized wire netting for inclosing poultry, pheasants, and dogs, etc. 228

159 Greening, N., & Sons, Warrington.—Woven wire. 228

160 Cox Brothers, Camperdown Linen Works, Dundee, Scotland.—Jute yarns, twines, etc. 229

161 Sandeman, Frank Stewart, Manhattan Works, Dundee, Scotland.—Linen and jute yarns, carpet yarns, burlaps, baggings, canvas paddings, scrim cloth, horse covers, and lap robes. 229

162 Laird, William, & Co., Canmore Linen Works, Forfar, Scotland.—Textile fabrics, dices, washed damasks, fancy towelings, horsecloths, sheetings, osnaburgs, stair covering, seamless bags, hessians, striped beddings, paddings, ducks, buckram, etc. 229

163 Johnson, Jabez, & Fildes, Manchester.—Quilts and bedcovers, toilet or bureau covers, brocades, damasks, dimities, muslins, and printed cretons, towels, dress fabrics, etc. 230

164 Dewhurst, John, & Sons, Belle Vue Mills, Skipton, Yorkshire.—Sewing cotton finished and in various stages of manufacture. 230

165 Brook, Jonas, & Bros., Meltham Mills, Huddersfield.—Spool cotton, white and colored; crochet and embroidery cotton. 230

166 Neilson, Storer, & Sons, Thorn Mills, Johnstone, near Paisley.—Yarns; knitting, mending, and other cottons; yarns for lace, curtain, and fancy dress manufacturers. 230

167 Ferguson Brothers, Holme Head Works, near Carlisle.—Satteens. 230

168 Clark, John, jr., & Co., Glasgow, Scotland.—Spool cotton. 230

169 Swainson, Birley, & Co., Fishwick Mills, Preston.—Bleached cotton fabrics. 230

170 Barlow & Jones (limited), Manchester.—Toilet quilts, covers, and mats; cloakings, cotton towels, blankets, alhambras, and counterpanes, plain and fancy muslins, etc. 230

171 Ashworth, Edmund, & Sons, Egerton Mills, Bolton, Lancashire.—Cotton in various stages of manufacture; yarns, sewing cottons; crochet, embroidery, knitting, mending, and glove cottons, linen finish thread. 230

172 Pearson, Thomas, & Son, Victoria Mills, Little Bolton.—Quilts, quiltings, toilet covers, and mats. 230

173 Hawkins, John, & Sons, Manchester.—Plain and twilled calicoes and prints. 230

174 Wild, John, Greenfield Mills, Shaw, near Oldham.—Cotton plush velveteen. 231

175 Schwabe, Salis, & Co., Manchester.—Cotton prints for garments, chintzes, and furniture. 232

176 Simpson & King, Manchester.—Printed cotton furniture fabrics. 232

177 Marshall & Co., Leeds.—Linen sewing threads. 233

178 McBride, Robert, & Co., Belfast.—Cotton and mixed cotton and linen goods. 233

179 Normand, James, & Sons, Dysart, Fifeshire, Scotland.—Linens for housekeeping, shoe linings, etc. 233

180 Ewart, William, & Sons, Belfast, Ireland.—Linen fabrics. 233

181 The York Street Flax Spinning Company (limited), Belfast.—Linen piece goods, drills, ducks, sheetings, shirtings, and frontings. 233

182 Matier, Henry, & Co., Belfast.—Bleached and printed linens; handkerchiefs, plain, hemstitched, printed, and embroidered. 233

183 Ainsworth, Thomas, Cleator Mills, Cleator, Cumberland.—Linen threads and towels. 233

184 The Greenmount Spinning Company, Greenmount Factory, Dublin.—Linen and cotton goods for domestic and clothing purposes. 233

185 Ullathorne & Co., London.—Shoe and saddlers' threads, heel balls, and shoe findings. 233

186 Fenton, Connor, & Co., Linen Hall, Belfast.—White linens, cambric, table linens, linen ducks, drills, etc.; printed shirtings and lawn dress goods. 233

187 Brown, John S., & Sons, Belfast.—Table linen, diapers, sheetings, shirting linen, lawns, linen and cambric handkerchiefs, and yarns. 233

188 Richardson, J. N., Sons, & Owden, Belfast.—Linen goods. 233

189 Dicksons, Furguson, & Co., Belfast.—Linens bleached and unbleached. 233

Woolen and Linen Goods, Felting, Carpets, Silks.

190 Dunbar, McMaster, & Co., Bleachers, Gilford, County Down, Ireland.—Linen threads, gray and bleached yarns. 233

191 Thorpe, John, & Co. (limited), Walkden, near Bolton.—Furniture upholstered with patent imitation leather. 234

192 Nairn, Michael, & Co., Kirkaldy, Scotland.—Floor oil cloths. 234

193 Tull, Glanvill, & Co., Crown Works, London.—Floor coverings. 234

194 Corticine Patent Floor Covering Company, London.—Floor covering. 234

195 Hall, Thomas, Edinburgh.—Hand painted cloths in imitation of tapestry, for wall decoration. 234

196 Wellock, J., & Co., Bradford, Yorkshire.—Waterproof materials for cart and wagon covers. 234

197 Boulinikon Floor Cloth Manufacturing Company (limited), Manchester.—Floor cloth. 234

198 Andrews, Henry, & Co., Leeds.—Worsted coatings, wool and union cloths, and wool meltons. 235

199 Hooper, Charles, & Co., Eastington Mills, Stonehouse, Gloucestershire.—Woolens, broadcloths, military cloths, doeskins, beavers, elysians, kerseys, meltons, coatings, and trowserings. 235

200 Salter, Samuel, & Co., Home Mills, Trowbridge, Wiltshire.—Trowserings and coatings. 235

201 Mahony, Martin, & Brothers, Blarney, Ireland.—Tweeds, boating serge, worsted coatings, railway traveling wraps. 235

202 Anderson, David, & Son, Lagan Felt Works, Belfast, Ireland.—Roofing, flooring, and ship sheathing felt, lining felt, hair felts for covering boilers and steam pipes. (*In Machinery Hall.*) 235

203 Bliss, William, & Son, Chipping Norton, Oxon.—Tweeds, woolen serges, and shawls; mauds and rugs; saddlers' woolens. 235

204 Brigg, J. F., & Co., Huddersfield, Yorkshire.—Beavers, coatings, cheviot, cassimeres, carriage and livery cloths, drills, ducks, doeskins, elysians, meltons, kerseys, pilots, rugs, vestings and quiltings, velvets, union cloths, witneys, and reversible coatings. 235

205 Carr, Isaac, & Co., Twerton Mills, Bath.—Woolen cloths, meltons, twills, beavers. 235

206 Bubb & Co., Southfields Mills, near Stroud.—Woolen cloths; billiards, government, and piano cloths. 235

207 Marling & Co., Ebley and Stanley Mills, Stroud, Gloucestershire. — Raw, scoured, and dyed wool; woolen cloths, beavers, Venetians, doeskins, deerskins, cassimeres, etc. 235

208 King, William, Gilroyd and Albert Mills, Morley, Leeds.—Union and melton cloths. 235

209 Birchall, J. D., & Co., Burley Mills, Leeds.—Woolen and worsted goods. 235

210 Hepworth, B., & Sons, New Wakefield Mills, Dewsbury, Yorkshire.—Rugs and railway knee wrappers. 235

211 Hargreave & Nusseys, Farnley Low Mills, Leeds.—Coatings, overcoatings, kerseys, meltons, woolen cloths. 235

212 Engert & Rolfe, London.—Felts for roofing, fibrous asphalt, etc. 235

213 Davies, Robert S., & Sons, Stonehouse Mills, Gloucestershire. — Cloths, doeskins, Venetians, meltons, coatings, beavers, etc. 235

214 Little, T. W., & Co., Leeds.—Mantle cloths, waterproof tweeds, twills, meltons, blue and black deerskins, and diagonals. 235

215 McTear & Co., Belfast, Ireland.—Roofing, ship sheathing, and inodorous felt; model of roof. 235

216 Jones, Pryce, Newtown, North Wales.—Welsh flannel, homespuns, shawls, tweeds, yarns, etc. 236

217 Buckley, Joseph, & Co., Moorcroft Mills, Delph, near Manchester.—Shawls, raised fancies, Rob Roys, and shepherds. 236

218 Buckley, J. E., & G. F., Linfitts Mill, Delph, near Manchester.—Queensland and beaver shawls. 237

219 Williams, E. G., & Co., Bradford, Yorkshire. — Textile fabrics for dress goods. 238

220 Pim Brothers, & Co., Dublin.—Irish poplins, silk terries, and brocatelles. 238

221 Henderson & Co., Durham.—Durham axminster. 239

222 Lewis, John, Halifax, Yorkshire.—Brussels and Wilton carpets. 239

223 Gregory & Co., London.—Indian and Persian carpets. 239

224 Robinson, Vincent, & Co., London.—Carpets and rugs. 239

225 Crossley, John, & Sons (limited), Dean Clough Mills, Halifax, Yorkshire.—Carpets, rugs, sofa carpets, table covers, etc. 239

226 Tomkinson & Adam, Kidderminster.—Axminster carpets. 239

227 Lapworth Bros., London.—Carpets and rugs. 239

228 Templeton J., & J. S., Glasgow.—Brussels and Wilton carpeting; silk and wool window curtains. 239

229 Templeton, James, & Co., Glasgow.—Axminster carpets, breadth carpeting, hearth rugs. 239

230 Webb, Edward, & Sons, Worcester.—Hair cloth for furniture covering, hair cloth paddings, curled hair, crinoline, hair cloth. 240

Silk and Silk Fabrics.

231 Clayton, Marsdens, Holden, & Co. (limited), Wellington Mills, Halifax.—Silk waste, spun silk yarns, woven fabrics. 242

232 Sheldon & Fenton, London.—Sewing silks, tailors' twist, machine silks, etc. 243

233 Rickards, Charles Ayscough, Bell Busk Mills, near Leeds.—Sewing and machine silks, twists; embroidery, knitting, and crochet silks. 243

234 Milner, Wm., & Sons, Leek, Staffordshire.—Sewing silks. 243

Silks, Clothing, Jewelry, Ornaments, Fancy Goods.

235 Ward, Anthony, & Co., Albion Silk Mills, Leek, Staffordshire.—Silk threads. 243

236 Adams & Co., London.—Knitting silks, filoselle. 243

237 Hilditch, G., & J. B., London.—Silk and silk fabrics; velvets. 245

238 Norris & Co., London.—Silk for furniture and upholstery purposes. 246

239 French & Co., St. Mary's Mills, Norwich.—Black crape. 247

240 Stevens, Thomas, Stevengraph Works, Coventry.—Jacquard loom at work; ribbons, neckties, sashes, badges, and emblematical regalia; navy hat ribbons, gold and silver lace, silk-centred sachets, cards, and valentines. 248

241 Jacoby, M., & Co., Nottingham.—Valenciennes and silk guipures; imitation Swiss curtains, lace curtains. 249

242 Stewart, Moir, & Muir, Glasgow.—Curtains for window and decorative purposes and for use in the British section. 249

243 Hodges, T. W., & Sons, Leicester.—Elastic webs, braids, and cords. 249

244 Heymann & Alexander, Nottingham.—Silk, wool, and cotton laces, nets, quillings, trimmings, etc. 249

245 Browett, Frederick, & Co., Coventry.—Cambric frillings, curtain borders, dress trimmings, woven name tapes, and mantles. 249

246 Simon, May, & Co., Nottingham.—Lace curtains, valances; nets; Shetland scarfs, shawls, elastic webs, etc. 249

Clothing, Jewelry, and Ornaments, Traveling Equipments.

247 Schreiber, Felix August, London.—Ladies' underclothing. 250

248 Turner, Archibald, & Co., Leicester.—Elastic fabrics, cords, and braids; surgical braids and bandages. 250

249 Morley, J., & R., London.—Hosiery and gloves. 250

250 McLintock, James, & Sons, Barnsley, Yorkshire.—Down quilts, skirts, pillows, jackets, and dressing gowns; dress improvers, slippers, etc. 250

251 Welch, Margetson, & Co., London.—Scarfs and ties, silk handkerchiefs, linen collars, shirtings, umbrellas, rugs, etc. 250

252 Sykes, Josephine, & Co., London.—Corsets and ladies' belts. 250

253 Hitchcock, Williams, & Co., London.—Costumes of mixed fabrics. 250

254 McGee, John G., & Co., Belfast, Ireland.—Ulster overcoats and Irish homespun goods; traveling wraps, shawls, and rugs. 250

255 Smyth & Co., Balbriggan, Ireland.—Balbriggan hosiery, lace hose, light stockings. 250

256 Roe, William Allen, Leicester.—Boots and shoes. 251

257 Lobb, John, London.—Gentlemen's and ladies' boots. 251

258 Dash, Osmond, Brighton.—Hats, caps, and umbrellas. 251

259 Baxter, Richard, Thirsk, Yorkshire.—Boots; wooden clump boots. 251

260 Lincoln, Bennett, & Co., London.—Hats. 251

261 Humbert, Hermann, London.—Hats and bonnets; hat and bonnet shapes. 251

262 Daggett, Christopher, Woodstock, Oxfordshire.—Gloves. 251

263 Debenham & Freebody, London.—Gloves. 251

264 Tress & Co., London.—Hats; pith and felt solar hats and helmets. 251

265 Smith, George John, London.—Irish lace made by the Industrial Poor. 252

266 Dunraven, the Countess of, Adare, County Limerick, Ireland.—Embroidery on lawn; robes, pocket handkerchiefs, insertion for dresses, pincushion cover, etc. 252

267 Goggin, Jeremiah, Dublin.—Jewelry; table ornaments, mirrors, timepieces, reading stands, walking canes, pipes, drinking cups, tankards, etc. 253

268 Bryan, Charles, West Cliff, Whitby.—Jet, rough and in ornaments of various descriptions. 253

269 Francati & Santamaria, London.—Jet ornaments, brooches, earrings, bracelets, necklaces, etc.; jet cameo mosaics, carved by Roman cameo cutters. 253

270 Jefferys, John, London.—Sleeve links, studs, solitaires, scarf rings, etc. 253

271 Neal, John, London.—Gold and silver jewelry, precious stones, table ware, cutlery, gold and silver watches, chronometers, and timekeepers. 253

272 Aitchison, James, Edinburgh.—Scottish jewelry in gold and silver; Highland ornaments and stones found in Scotland. 253

273 Gibson, William, Belfast.—Watches; gold, diamond, and Irish bog oak jewelry; walking sticks and table ornaments. 253

274 English, John, & Co., Feckenham, Worcestershire.—Needles; fishhooks; steel pins; hairpins; bodkins. 254

275 Johnson, J., & Co., Charterhouse Works, Sycamore street, London.—Shell boxes, toy furniture and ornaments, and fancy paper boxes. 254

276 Davis & Wilson, Birmingham.—Whip, walking stick, and umbrella mountings; African chiefs' canes; whips and general whip materials. 254

277 Millward, Henry, & Sons, Redditch.—Needles, sewing machine needles, fishhooks. 254

278 Turner, R., & Co., Old Factory, Redditch.—Needles, pins, fishhooks, etc., displayed in a glass case, forming model of the exhibition of 1851. 254

279 Swaine & Adeney, London.—Whips, whip lashes, thongs, and sockets; horns, canes, and walking sticks; sporting apparatus. 254

280 Smith, John Wright, Leicester.—Self-acting needles used in hosiery frames. 254

281 Van Volen, Garret, London.—Human hair; tools used in preparation and manufacture. 254

Needles, Pins, Traveling Equipments, Stationery, Weapons.

282 Evans, David, Studley, Redditch.—Needles for hand and machine sewing. 254

283 Fenton, James, Birmingham.—Pearl buttons. 254

284 Kirby, Beard, & Co., Birmingham.—Pins, needles, hairpins, fishhooks, etc. 254

285 Sangster & Co., London.—Umbrellas, parasols, sunshades, whips, canes. 254

286 Smith, James, & Son, Astwood Bank, near Redditch.—Needles, showing stages of manufacture; bodkins, hairpins, and fancy cases for holding needles. 254

287 Hayes, Crossley, & Co., London.—New shape sewing needles, machine needles, pins, bodkins, and specimens in various stages of preparation. 254

288 Cooke Brothers, Birmingham.—Safety pins, curtain hooks, and fancy nails. 254

289 Woodfield, William, & Sons, Easemore Works, Redditch.—Needles, sewing machine needles, fishhooks, etc.; sail tools and fancy needle cases. 254

290 Martin, William Henry, London.—Umbrellas, walking sticks, whips. 254

291 Nicholson, Hamlet, Rochdale.—Cricket and playing balls. 254

292 Tayler, D. F., & Co., New Hall Works, Birmingham.—Solid-headed toilet pins, hairpins, hooks and eyes, pearl buttons; iron, steel, brass and copper wire. 254

293 Heath, William, Neveux Works, Redditch.—Sewing machine needles. 254

294 Turner, George, & Co., London.—Military and traveling equipments, hammock valise, bedstead and sofa, mosquito curtains, tent, camp oven and canteen, ambulances, appliances for picketing horses, screw anchor peg. 255

295 Hoe, Richard, & Sons, London.—Leather portmanteaus, hat cases, and bags. 255

296 Harrington, J., & Co., London.—Imitation leather hat linings, shoes and shoe linings, wall decorations, pocketbooks, belts, dispatch boxes, dressing and jewel cases, glove and handkerchief boxes, etc. 255

297 Bussey, Geo. G., & Co., London.—Chili leather portmanteaus, trunks, traveling bags, and leather and waterproof goods used for shooting and traveling purposes; breechloading guns and their accessories; gyro pigeon. 255

Paper, Blank Books, and Stationery.

298 Webster, Henry, London.—Portable inkstand, writing cases, etc. 258

299 Hincks, Wells, & Co., Buckingham Steel Pen Works, Birmingham.—Steel pens, penholders. 258

300 Stevens, Henry Charles, London.—Inkstands, gum mucilage, quills, sealing wax, parallel rulers. 258

301 Ortner & Houle, London.—Seal engraving, steel and copper plate heraldic engraving, and die sinking. 258

302 Ward, Marcus, & Co., London.—Writing papers and envelopes, illustrated books, chromo prints, maps and atlases, cards, valentines, photograph albums, scrap books, educational works, copy books, fancy leather work, diaries, calendars, etc. 258

303 Blackwood, John, & Co., London.—Sealing and bottle wax. 258

304 Lyons, William, Manchester.—Sealing wax, gum mucilage. 258

305 Waterston, George, & Son, Edinburgh.—Sealing wax. 258

306 Ford Works Co., Ford, Durham.—Paper stock, manufactured from esparto grass; products from esparto, bamboo, megasse, phormium tenax, maize, and other fibres. 259

307 Dudgeon, Arthur, London.—Writing papers. 259

308 Pirie, Alexander, & Sons, London.—Writing papers, cardboard, and enameled papers. 259

309 Dudgeon, Arthur, London.—Paper pulp, manufactured from peat. 259

310 Fletcher, Robert, & Son, Kersley Paper Works, Stoneclough.—White and colored papers, fine tissues, silver tissues, copying and cigarette papers. 259

311 Birdsall & Son, Northampton.—Binding of the Hexaglot Bible. 261

312 Goodall, Charles, & Son, Camden Works, London.—Playing and Christmas cards. 262

313 Rimmel, Eugene, London.—Valentines and fancy crackers. 262

314 Jeffrey & Co., London.—Artistic wallpaper decorations. 264

Military and Naval Armaments, Ordnance, Firearms, and Apparatus of Hunting and Fishing.

315 Reilly, E. M., & Co., London.—Breechloading guns and express rifles. 265

316 Greener, William Wellington, Birmingham.—Sporting guns and rifles; breechloading guns. 265

317 Rigby, John, & Co., Dublin.—Guns and rifles and their accessories. 265

318 Henry, Alexander, Edinburgh.—Breechloading express rifles, fowling-pieces, harpoon and bomb-lance guns; military arms and target rifles. 265

319 Clay, Randolph, London.—A converter for breechloading firearms; flexible gas tubing; an instrument for tracing ellipses and other curves; portable invalid bed tray; model of a deck seat with life-raft and of a boat distinguishing hook. 265

320 Dougall, James Dalziel, Glasgow.—Long-range shotguns and rifles. 265

321 Copeland, George Alexander, Camborne, Cornwall.—Safety blasting cartridges. 265

322 Lancaster, Charles, London.—Guns, rifles, cannon; drawings and models of the oval bored. 265

323 Scott, W., & C., & Sons, Premier Gun Works, Birmingham.—Sporting firearms, revolvers, gun materials. 265

324 Needham, J., & G. H., London.—Breechloading double guns. 265

325 Purdey, Jas., London.—Guns, rifles, etc. 265

326 Lancaster, Alfred, London.—Sporting guns and rifles. 265

327 Soper, William, Reading.—Rifles. 265

Weapons, Medical and Surgical Appliances, Hardware, Cutlery.

328 Lang, J., & Sons, London.—Guns and rifles. 265

329 Webley, P., & Son, Birmingham.—Sporting breechloading guns, rifles, and revolvers. 265

330 Needham, John, Sheffield.—Cutlery: daggers, table and dessert knives and forks; fish eaters. 268

331 Brookes & Crookes, Atlantic Works, Sheffield.—Pen, pocket, sportsman's, bowie, and table knives; scissors, razors, and dressing case instruments. 268

332 Marrison, Robert D., Norwich, Norfolk.—Breechloading guns and apparatus for filling cartridges; registered flyer for shooting practice. 269

333 Buchanan, James, Glasgow.—Sea fishhooks. 269

334 Ryder, William Henry, Birmingham.—Fishing tackle; taps for drawing effervescing wines or aerated waters. 270

335 Green, E. C., Cheltenham.—Sporting guns, with their appurtenances; cleaning rods, with attachments; cartridge-loading implements, nipple keys, gun cases and bags. 269

336 Tolley, J., & W., Pioneer Works, Birmingham.—Sporting breechloading shot guns, implements, cartridge cases, lubricators, bullets, and primets for reloading cartridges. 269

337 Williams & Powell, Liverpool.—Breechloading guns. 269

Medicine, Surgery, and Prothesis.

338 Allen & Hanburys, London.—Cod-liver oil; gelatine impregnated with atropine and calabar bean, for application to the eye. 272

339 Gerrard, Alfred William, London.—Mustard plasters. 272

340 Evans, Sons, & Co., Liverpool, and Evans, Lescher, & Evans, London.—Vegetable, animal, and mineral drugs; pharmaceutical products and accessories. 272

341 Usher, Rufus, Bodicote, Oxon.—Medicinal rhubarb; extract of henbane and dried henbane leaves; photographs of henbane plants. 272

342 Mackay, John, Edinburgh.—Articles of diet for invalid and table use. 273

343 Mellin, Gustav, London.—A non-farinaceous food for infants and invalids. 273

344 Goodall, Backhouse, & Co., Leeds.—Food for infants and invalids. 273

345 Lynch & Co., London.—Druggists' sundries and surgical instruments; spinal apparatus, chest protectors, feeding bottles, spray producers, poison bottles, etc. 276

346 Hicks, James Joseph, London.—Meteorological and scientific instruments. 276

347 Mayer & Meltzer, London.—Surgical instruments and galvanic batteries; cutlery. 276

348 Lee, Robert James, London.—Steam draft inhaler and disinfector. 276

349 Lang, Jonas, & Jules, London.—Gum elastic and india rubber surgical instruments, elastic stockings, medical glass bottles, glass tubes, etc. 276

350 Pulvermacher, Isaac Louis, London.—Electrical instruments for medical purposes. 276

351 Rein, Mrs. F. C., London.—Anatomical belts, elastic stockings, etc.; trusses, bandages, etc. 276

352 Rein, Frederick Charles, & Son, London.—Acoustic, surgical, and veterinary instruments; magneto-electric machines; speaking tubes and trumpets; acoustical contrivances for churches and public buildings, etc.; anti-acoustic protector. 276

353 Liverpool Spun Oakum Company, Liverpool.—Oakum, stypium; pure antiseptic dressing for hospital use. 276

354 Patrick, Hugh William, & Son.—Porcelain enameled artificial palates; porcelain dentures. 277

Hardware, Edge Tools, Cutlery, and Metallic Products.

355 Ward & Payne, Sheffield.—Tools for carpenters, joiners, coachmakers, shipwrights, millwrights, masons, bricklayers, tanners, curriers, engravers, diesinkers, plasterers; wood, stone, and metal carvers and turners, etc.; also sheep shears and steel. 280

356 Hawksworth, Ellison, & Co., Carlisle Works, Sheffield.—Steel, and articles made therefrom. 280

357 Baker, William, London.—Awls, bodkins, needles for saddlers, packers, and upholsterers; screwdrivers. 280

358 Addis, J. B., & Sons, Arctic Works, Sheffield.—Tools for carving stone and wood; turning tools for iron, brass, ivory, hard wood, etc.; carpenters' tools. 280

359 Kingsbury, Thomas, London.—Razors, knives, scissors, and dressing-case instruments, with specimens of manufacture. 281

360 Neal, John, & Co., London.—Table, dessert, and fish cutlery. 281

361 The Patent Nut and Bolt Company (limited), London Works, near Birmingham.—Iron bolts, nuts, screws, rivets, and washers; fish and sole plates; fish bolts, spikes, and fang bolts. 284

362 Francis, Thomas, & Co., Birmingham.—Nails. 284

363 Baker, Christopher, & Sons, Birmingham.—Coffin furniture; cabinet and general brass fittings; rails, stair rods, nails, and bolts. 284

364 The Phosphor Bronze Company (limited), London.—Phosphor bronze tools, locks, tubes, wire, sheet, steam fittings, parts of machinery, etc. 284

365 Adams, Robert, London.—Hinges and shoes, secure fastening bolts, weather tight sill bars for French casements, etc. 284

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370 Culmer, W., & Sons, London.—Brushes used in decorative art. 286

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Chemicals, Ceramics, Furniture, Woven Goods.

Chemical Manufactures.

1 Read, R. B., Randwick.—Extract, leaves, and berries of Smilacis glycyphylla, or Australian sarsaparilla. 200

2 Barrett & Co., Sydney.—Aerated waters and cordials. 200

3 Gilroy & Hurst, Sydney.—Baking, custard, egg, and butter powders. 200

4 Hunt, A. M., & Co., Goulburn.—Baking powders. 200

5 Swain & Co., Parramatta.—Washing fluid and soap. 201

6 New South Wales Shale and Oil Company, Sydney.—Kerosene oil, etc. 201

7 New South Wales Commissioners, Sydney.—Stearine candles. 201

8 Layton, Fred., Grafton, Clarence River.—Soap and candles. 201

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10 Hoff, M. Camille, Nakutakinna, New Caledonia.—Indigo. 202

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32 Moore, Charles.—Woods indigenous to the northern districts. 600

33 Shoobert, James, Sydney.—Iron bark and turpentine timber. 600

34 Derepas, W., Yonngara Station.—Boree, and straight and curly yarran timber. 600

35 Hodgson, George, Redfern.—Timber from Bellinger River. 600

36 Penzer, J., Bundainar, near Dubbo.—Timber. 600

37 Du Faur, E., Sydney.—Timber from Mount Victoria. 600

38 Hudson Bros, Botany Road, Redfern.—Timber. 600

39 Derepas, R., Yonngara.
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b Quongong nuts. 605

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45 Ryder Bros, Mango Island, Fiji.
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c Turmeric and turmeric powder. 622

46 Peden, M. J., Bega.—Maize. 620

47 Demestre, E., Shoalhaven.—Maize. 620

48 Eggins, James, Grafton, Clarence River.—Maize. 620

49 Blain, C. R., Grafton, Clarence River.—Maize. 620

50 Macarthur, Sir W.—Maize. 620

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52 Dalton Bros., Orange.—Wheat. 620

53 Nelson Bros., Orange.—Wheat. 620

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55 Schweigert, W., & Co.—Cigars. 623

56 Muirhead, R., Grafton, Clarence River.—Cigars. 623

57 Hoff, M. Camille, Nakutakina, New Caledonia.—Coffee. 623

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76 Cohen & Levy, Tamworth.—Flour. 657

77 Dalton Bros., Orange.—Flour. 657

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80 Cole, W., & Son, Tomago, Hunter River.—Arrowroot. 658

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95 Powell, Edward, Richmond.—Wines. 660

96 Parnell, Montague, West Maitland, Hunter River.—Wines. 660

97 Wyndham, Wadham, Bukkulla, Inverell.—Wines. 660

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THE SUN NEWSPAPER

Is printed and published every day in the year, at 166, 168, and 170 Nassau Street, New York City. Its regular edition on secular days now (April, 1876) averages about **140,000**; its weekly edition over **88,000**; and its Sunday issue is nearly **100,000.** It thus prints and sells more than a million copies a week, which are read all over the United States. This is a circulation unprecedented in American journalism, and it is constantly on the increase. In proof of this, let the following figures testify. They show the number of copies of THE SUN printed every week during the year ending March 11, 1876.

WEEK ENDING		COPIES PRINTED.	WEEK ENDING		COPIES PRINTED.
March	20	849,382	September	18	860,358
	27	845,802		25	858,778
April	3	857,956	October	2	863,935
	10	863,556		9	870,820
	17	855,076		16	878,082
	24	858,270		23	874,625
May	1	869,542		30	876,160
	8	867,550	November	6	908,580
	15	877,450		13	852,372
	22	874,946		20	847,815
	29	866,276		27	836,248
June	5	873,782	December	4	845,378
	12	869,769		11	1,042,716
	19	880,348		18	956,294
	26	883,846		25	933,864
July	3	898,862	January	1	933,987
	10	867,574		8	952,202
	17	877,400		15	953,019
	24	876,282		22	969,911
	31	874,216		29	967,850
August	7	865,558	February	5	993,030
	14	875,982		12	1,024,647
	21	880,488		19	1,027,209
	28	870,502		26	1,014,766
September	4	872,211	March	4	1,014,993
	11	860,755		11	1,028,951

TOTAL.....46,799,769

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5 **Stringer & Co., Melbourne.**—Baking powder. 200

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9 **Kitchen & Sons, Melbourne.**—Stearine and large carriage candles. 201

10 **Borthwick, Alex., Melbourne.**—Varnishes, anti-fouling composition for ships' bottoms, enameled cast iron pedestal pillars, anti-corrosive paint. 202

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113 Stoneman, Edward, Richmond.—Railway truck spring. 573

Aerial, Pneumatic, and Water Transportation.

114 Cornish & Co., Melbourne.—Life-preserving buoys, mattresses, belts, rafts, etc., seats, couches, and mattresses for ships. 590

Arboriculture and Forest Products.

115 Bass River Steam Saw Mills, Bass River.—Blue gum timber. 600

116 Director of Botanic Gardens, Melbourne.
a Carpological collection; barks, polished woods, fibre and tow prepared from barks, leaves, and stems. 600
b Resins, gums, oleo fat, and caoutchouc. 603

117 Lands and Agriculture, Department of, Melbourne.—Native woods. 600

118 Commissioners for Philadelphia Exhibition, Melbourne.
a Boxes, paper knives, and tubs, made of Victoria woods. 601
b Myall and grass-tree gum, rubber and rubber stamp. 603

119 Clark, John, & Sons, Melbourne.—Wattle bark. 602

Agricultural, Animal, Vegetable Products.

Agricultural Products.

120 Taylor, John, Allansford.—Adelaide wheat, grown at Merunga, near Warrnambool. 620

121 St. Arnaud Pastoral and Agricultural Society, St. Arnaud.—Short oats, wheat, barley. 620

122 Scott, James, Indigo, Chiltern.—Wheat. 620

123 Commissioners for Philadelphia Exhibition, Melbourne.—Purple-straw wheat, grass-tree plant. 620

124 O'Keefe, Andrew, Adelaide Vale, Clare Inn.—Purple-straw wheat. 620

125 Myring, Joseph, Campbell's Creek, Castlemaine.—Barley. 620

126 Adams, James, Wahring.—White Tuscan wheat. 620

127 Laidlay, John, Bundoora, Plenty-road.—Wheat. 620

128 McNair, Angus, Bellerine East.—New fodder-pea. 620

129 Stewart & Ferguson, Indigo, Chiltern.—Wheat. 620

130 Connor, James, Allansford.—Fox-tail oats, grown at Merunga, near Warrnambool. 620

131 Schmitt, Lewis, Mornington.—Wheat. 620

132 Buckley, Edward, Newbridge, Loddon.—Red-straw wheat from counties of Gladstone and Bendigo. 620

133 Jack, John, Oxley Plains, Ovens District.—Frampton white wheat, grown on chocolate soil after English grass. 620

134 Northeastern Pastoral and Agricultural Society, Murchison.—Wheat grown by J. McNab, Tabilk. 620

135 Moncrieff, John, Tabilk, Goulburn River.—Purple-straw and white wheat. 620

136 Gilmour, Andrew, Colomsky, Buangor.—Oats from parish of Ballyrogan. 620

137 Rossi, Thomas, Dry Diggings, near Daylesford.—Purple-straw wheat. 620

138 Polson, Angus, Chapman, Moyston.—English barley, Tartarian oats, purple-straw and white wheat. 620

139 West Bourke Pastoral and Agricultural Society, Romsey.—White Tuscan wheat, grown by Hon. T. F. Hamilton. 620

140 Aboriginal Mission Station, Coranderrk.—Hops. 623

141 McKenzie, James F., & Co., Melbourne.—Coffee, chicory, cocoa, and chocolate made from Trinidad nuts; mustard, spices. 623

Land Animals.

142 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.
a Water fowl, stuffed by Chas. French. 635
b Manna, with the insect producing it. 638

143 St. John, F., Melbourne.—Ducks, plover, grouse, quail, black swan, etc. 635

144 Grimwood, Thomas, Fern Tree Gully.—Quail, snipe, landrail. 635

145 Gaskell, Joseph, Melbourne.—Australian snipe. 635

146 Robertson, W. W., Richmond.—Australian native birds. 635

147 Gaskell, Joseph, Melbourne.—Wild animals. 637

148 Godfrey, F. R., Melbourne.—Wild animals. 637

149 McCoy, Prof., Melbourne University.—Wild animals, and black swan. 637

150 French, C., Melbourne.—Australian longicorns, buprestidal, lepidoptera, etc. 638

151 Timbrell, Ann, Collingwood.—Japan silkworms, modeled in wax. 638

Water Animals, Fish Culture and Apparatus.

152 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Brown trout. 641

153 St. John, F., Melbourne.—Fish. 641

Animal and Vegetable Products.

154 Bird, George, Inkerman, Lyndhurst.—Cheese. 651

155 Pierce, G. G., Melbourne.—Cheese. 651

156 Riddle, J., Lancefield.—Cheese. 651

157 Clark, John, & Sons, Melbourne.—Leathers, skins, basils. 652

158 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Rugs made from skins of Victorian animals. 652

159 Fink, M., Geelong.—Skins. 652

160 Quinn, H. S., Richmond.—Dyed and white wool mats, kangaroo glove leathers. 652

161 Brearley Brothers, Geelong.—Sole leather. 652

162 Dunckley & McBride, Melbourne.—Sash lines, whip gut, gut lathe bands, sausage casings. 652

163 Pearse Brothers, Fremantle, Western Australia.—Hides, leather, skins. 652

164 Fitts, Charles, & Sons, Emerald Hill.—Glue. 652

165 Penal Department, Inspector-General of, Melbourne.—Leather. 652

166 Wallis & Co., Richmond.—Leather, goat skin mat. 652

167 Boddy, Edward, Nagambie.—Flour. 657

168 Hood, F. & J., Melbourne.—Malt. 657

169 Martin, P. J., Melbourne.—Malt. 657

170 Myring, Joseph, Campbell's Creek, Castlemaine.—Malt. 657

171 Perrin, William, jr., Richmond.—Malt. 657

172 Bennett, T. K., Melbourne.—Preserved meats. 656

173 Director of Botanic Gardens, Melbourne.—Jam. 656

174 Zorn, Edward, Clayton's-road, near Oakleigh.—Tomato and Oakleigh sauces. 657

175 Wright, Payne, & Co., South Yarra.—Fruit jams. 657

176 Watson & Paterson, Melbourne.—Hams, bacon, mess pork. 657

Animal and Vegetable Products, Wines, Textile Substances.

177 Western Meat Preserving Co., Colac.—Preserved meats. 657

178 Melbourne Meat Preserving Co., Melbourne.—Preserved meats. 657

179 Lyon, George, Beechworth.—Tomato sauce. 657

180 Grant, Mrs., Richmond.—Tomato sauce. 657

181 Comport, Henry, Cheltenham.—Tomato sauce. 657

182 Stringer & Co., Melbourne.—Mixed pickles, sauces, curry powder. 657

183 McKenzie, Jas. F., & Co., Melbourne.—Oatmeal, groats, brose meal. 657

184 Trouette & Blampied, Great Western, Ararat District.—Wines. 660

185 Best, Joseph, Great Western, Ararat District.—Wine. 660

186 Docker, F. G. & J. B., Wangaratta, Beechworth District.—Wine. 660

187 Evans, Henry, Beechworth District.—Wine. 660

188 Mellon, Francis, Dunolly, Castlemaine District.—Wines. 660

189 Botten, William, Eddington, Castlemaine District.—Wine. 660

190 Jung, Otto, Castlemaine, Castlemaine District.—Wines. 660

191 Schroeder, Castlemaine, Castlemaine District.—Wines. 660

192 Crippa, Fabrizzio, Hepburn, Castlemaine District.—Wine. 660

193 Greer & Co., Echuca, Echuca District.—Wines. 660

194 Vettler, John, Echuca, Echuca District.—Wines. 660

195 Weber, Jacob, Geelong, Geelong District.—Wine. 660

196 Deppeler, Jacob, Gheringhap, Geelong District.—Wine. 660

197 Ritchie, John, Murgheboluc, Geelong District.—Wine. 660

198 Bear & Ford, Tabilk Vineyard, near Seymour, Goulburn District.—Wine. 660

199 Egli, F., Tabilk, Goulburn District.—Wine. 660

200 Schmitt, Franz, Berwick, Melbourne District.—Wine. 660

201 Francis, Charles, Sunbury, Melbourne District.—Wines. 660

202 St. Hubert's Vineyard Co., Yering, Melbourne District.—Wines. 660

203 Johnston, J. S., Craiglie Vineyard, Sunbury, Melbourne District.—Wines. 660

204 Maplestone, Charles, Ivanhoe Lodge, Heidelberg, Melbourne District.—Wines. 660

205 Brasche, Charles, Sunbury, Melbourne District.—Wine. 660

206 Snowden, E. G., Boroondara, Melbourne District.—Wine. 660

207 Smith, G. S., Wahgunyah, Melbourne District.—Wine. 660

208 Pohl, Carl, Strathfieldsaye, Sandhurst District.—Wines. 660

209 Bruhn, Albert, Strathfieldsaye, Sandhurst District.—Wines. 660

210 Fuchs, Adolph, Strathfieldsaye, Sandhurst District.—Wines. 660

211 Fischer, August, Shamrock Vineyard, Emu Creek, Strathfieldsaye, Sandhurst District.—Wines. 660

212 Shaw, F. K., Goornong, Sandhurst District.—Wine. 660

213 Grosse, Frederick, Strathfieldsaye, Sandhurst District.—Wines. 660

214 Grosse, Fred., Toorongo Vineyard, Bendigo, Sandhurst District.—Wine. 660

215 Greiffenhagen, Wm., Strathfieldsaye, Sandhurst District.—Wines. 660

216 Brown, H. J., Australian Distillery, Melbourne.—Geneva spirits of wine. 660

217 Fuller, Alfred, Kew.—Ale, stout. 660

218 Henelly, James, Melbourne.—Ale. 660

219 Latham, Edward, Carleton Brewery, Carleton.—Ale, porter. 660

220 Martin, P. J., Melbourne.—Ale. 660

221 Reed, Henry, & Co., South Yarra.—Vinegar. 660

222 Steward, James, Eaglehawk, Sandhurst.—Ale. 660

223 Treacy, John, & Co., Geelong.—Ale, stout. 660

224 Warrenheip Distillery Co., Ballarat.—Whisky, Geneva spirits of wine. 660

225 Guest, T. B., & Co., Melbourne.—Fancy biscuits. 661

226 Smith & Son, West Melbourne.—Biscuits. 661

227 Swallow & Ariell, Sandridge.—Biscuits. 661

Textile Substances of Vegetable or Animal Origin.

228 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Cotton. 665

229 Atkinson, Wm., Camperdown.—Teazles. 666

230 Longmire, Thomas, Koorooche-ang, Smeaton.—Flax stalks and seeds. 666

231 McPherson, Thomas, & Co., Melbourne.—Jute. 666

232 Armstrong, Alex., Warramtine, Shelford.—Wools. 667

233 Arnold, George, & Co., Melbourne.—Assorted wools grown by James Gibson, Cleveland, Tasmania; Wm. Gibson & Son, Scone, Tasmania; P. Russell, Langi Willi and Carngham, Victoria; Wm. Cumming, Mt. Fyans, Victoria; A. M. Campbell, Melaluka, Victoria; John Macvean, Mooloomoon, Victoria; Thos. Russell & Co., The Plains, Victoria; G. W. Thomson, Challicum, Victoria; Thos. Millear, Green Vale, Victoria; Executors of late A. Russell, Mawallok, Victoria; Wm. Lewis, Stoneleigh, Victoria; J. & S. Austin, Mount Pleasant, Victoria; and Wm. Murray, Brie Brie, Victoria 667

234 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Wools; wool from S. Robertson, Geelong. 667

235 Currie, John Lang, Larra, Derimallum.—Wools. 667

236 Degraves, C. & J., Coliban Park, Elphinstone.—Wool. 667

237 Elder, W. & N. G., Elder, Rookwood.—Wools. 667

238 Gilbert, Alfred N., Warwilla Station, Wanganilla, Deniliquin.—Wools. 667

239 Goldsbrough, R., & Co., Melbourne.—Assorted wools, grown by James Alexander, Woodhouse station; R. & J. Ramsey, Narrow Plains station; Carter Bros., Glenisla station; J. & H. Orborne, Momalong Plains; A. & H. McCulloch, and others. 667

240 Greeves, Edward G., Berriallock, Skipton.—Wool. 667

241 Hastings, Cunningham, & Co., The Australian Wool Stores, Melbourne.—Fleeces of wool from the following breeders: H. Cattanach, Tellegara; C. W. Simson, Mundagal; Godfrey & Chambers, Pevensey; F. L. Parker, Quiamong; Everett & Watson, Tchelery and Nyang; Hon. Wm. Lang, M. L. A., Wargam; Hon. Phillip Russell, M. L. A., Carngham and Langi Willi; John L. Currie, Larra; Thomas Dowling & Sons, Jellalabad; executors of late A. Russell, Mawallock; Wm. Lewis, Stoneleigh; Ewan McPherson, Binduck; Godfrey McKinnon, Goonambill; Russell & Shaw, Eli Elwah; Rutherford Brothers, Ulupna; Hon. Robert Simson, M. L. A., Langi Kal Kal; Nichol & Telford, Tarrawonga; Knight & Lydiard, Koorongah; Mount Battery Co., Mount Battery; Alfred Chenery, Delatite; Alexander Wilson, Mount Emu; J. G. Reeves, Footscray. 667

242 Henty, Edward, Portland.—Wools. 667

243 Keynes, Joseph, Keyneton, South Australia.—Fleece and wool. 667

244 Lang, William, Wargam, Wanganilla, N. S. W.—Wools. 667

245 Moore & Co., Coorong, near Hay, N. S. W.—Wool. 667

246 McVean, John, Wooloomoonoo, N. S. W.—Wool. 667

247 Reeves, Isaac G., Footscray, Melbourne.—Wool. 667

248 Russell, Thomas, Barunah Plains, Mount Hesse.—Wool. 667

249 Rutledge, William, Farnham Park, Warrnambool.—Fleeces. 667

250 Rutherford, Andrew, Como, Kensington, Geelong.—Wool. 667

251 Synnot, Monckton, Melbourne.—Wool. 667

252 Synnot, George, & Co., Geelong.—Wool. 667

253 Thomas, C. T., North Sandridge.—Dressed skin of pure Romney ewe, bred by R. Muldoon, Boos. 667

254 Timms Brothers, Mount Hesse, Beeac.—Wools. 667

255 Watson, Alexander, Warribee.—Fleeces. 667

256 Wilson, Sir Samuel, Oakleigh Hall, East St. Kilda.—Wools and fleeces. 667

257 Wilson, John, Lismore.—Wool. 667

258 Howard, John, near Albury.—Sample cocoons of mulberry silk worms, with wound silk in its natural colors; floss silk; Japanese and Italian grain; hanks of suffocated and pierced cocoons. 668

Machines, Implements, and Processes of Manufacture.

259 Lennon, Hugh, North Melbourne.—Double-furrow plow. 670

260 Bodington, Robert, Carlton.—Sheep-support on rollers. 674

Ornamental Trees, Shrubs, and Flowers.

261 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Tree ferns from Dandenong State Forest and Mount Macedon; todea ferns from Mount Macedon. 707

262 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Fac-similes of specimens of fruit, the originals of which were selected during the past season, modeled and arranged by Thos. McMillan:

a Apples and pears from Josiah Trevestan, Ballarat; Chas. Draper, Hazelghen; H. U. Cole, Twyford; Robert Whatmough, Greensborough; Horticultural Society of Victoria; John Harbison, Essendon; John Smith & Sons, Riddell's Creek; T. C. Cole; King & Sons, Fyansford; Geelong and Western District Agricultural and Horticultural Society; W. L. Hunt, Malvern; Chas. Allen, jr., South Brighton; Thos. Christian, Mount Macedon; W. Lawford, Doncaster; J. Carson; J. Roberts; H. Boyce; Mr. Freike, Carisbrook; C. May, Sunbury; J. C. Cole, Richmond; J. D. Roberts, Hawthorne; Robt. Hepburn, Hawthorne; A. Stuart, Toorak; Geo. Kilroy, Caulfield; J. Weber, Geelong; Jas. Lang, Harcourt; Sir Redmond Barry; J. Banks, Flemington; Mr. James, Ballarat; Jos. Bosisto, Richmond; and Joseph Webster, Wahgunyah.

b Quinces from Sir Redmond Barry and J. Webber, Geelong.

c The medlar and the loquat.

d Peaches from C. Draper, R. Whatmough, W. Lawford, J. McDonald, G. & W. D. Agricultural and Horticultural Society.

e Nectarines from R. Whatmough and market.

f Apricots, plums, cherries, and olea europœa.

g Grapes, mulberries, figs, pomegranates, and oranges.

h Kau apples from Mr. Graham and the Melbourne Botanical Gardens.

i Gooseberries from Thos. Lang & Co. and F. Moss, Buninyong.

j Black, red, and white currants from Thos. Lang & Co.

k Raspberries from Henry Boyce.

l Almond, walnut, and hazel nuts.

m Strawberries.

n Tomatoes from Horticultural Society's Gardens; W. Chandler, Scoresby; and King & Son, Fyansford.

o Egg apple from H. J. Dines.

p Cape gooseberries and capsicums.

q Book collection of plants, shrubs, trees, and herbs. 709

263 Gaskell, Mrs., Melbourne.—Fac-similes of Victorian bush flowers. 709

SOUTH AUSTRALIA.—STATISTICAL PREFACE.

THE colony of South Australia embraces 25 degrees of latitude through the centre of the continent of Australia, from the Southern to the Indian Ocean, and is bounded on the east by the colonies of Victoria, New South Wales, and Queensland, and on the west by the colony of Western Australia. Its area is 914,730 square miles, or 585,427,200 acres; being about a third of the area of the United States of America, or ten times that of Great Britain. Its population is 210,699.

Its chief exports are wool, wheat, and copper. In 1875 the exports were valued at £4,442,100—namely: of wool, £1,778,297; of agricultural produce, £1,688,035; of metals, £758,664; and of other products, £217,104. Its revenue in 1875 was £1,143,312, its people not being taxed at a higher rate than 25 shillings a head. The people have purchased land of the government to the extent of 4,634,711 acres, of which 1,400,000 are under cultivation; and the average price paid since 1845 is £1 5*s.* 2*d.* per acre. The public debt is about £3,000,000; but, as an offset, is a sum of £2,225,000 due for lands sold to occupiers, and payable within six years.

The natural wealth of the colony in healthy climate, fruitful soils, and abundant minerals, has been greatly augmented by useful and substantial improvements. In addition to numerous ports made serviceable for coasting trade, inland traffic is facilitated by 884 miles of excellent macadamized roads, which have cost over £2,000,000; and by railways of nearly an equal further cost. The public and private buildings, both in towns and country, are mostly of well-built stone, with slate or iron roofs. Gardens and orchards, pasture and arable fields cover the more settled portions of the colony, whilst over hundreds of miles outside of these some 6,000,000 sheep, 200,000 head of horned cattle, many thousands of horses, and a few hundred camels, thrive at large on the native vegetation, save that their ranches, or runs, are mostly inclosed in areas of from 5 to 50 square miles with good post and wire fencing.

The best of meat and bread, fruit and vegetables, grow in abundance in South Australia. People there live well at little cost. Labor is well rewarded. There are not, or ought not to be, any able-bodied paupers in the colony. At the savings' banks, which are guaranteed by government, the small deposits of the poorer classes approximate £800,000, on which four to five per cent. interest is paid. Immigration is promoted by annual money votes, which, through Mr. F. S. Dutton, C. M. G., Agent-General for the colony in London, supplies free or assisted passages for eligible persons.

The government, the laws, and the social institutions, like the people of South Australia, have an Anglo-Saxon character. There is the fullest civil and religious freedom under a vice-regal governor, whose ministers are chosen by, and are responsible to, a majority of two houses of parliament elected by ballot, as to the larger house, of manhood suffrage alone, and, as to the smaller house, by a slightly restricted property qualification. These organizations have worked harmoniously to the contentment of the people.

Churches and schools are numerous. The facilities for acquiring real property in the colony are great, and laws well secure its quiet enjoyment. The public lands are mostly sold on credit: one-tenth per cent. is paid down as interest on the purchase money, which is not less than twenty shillings per acre. The balance is deferred to the sixth year, a second ten per cent. on the purchase money having been paid on the third year as interest. At the sixth year half the

balanee may be renewed for four years at four per eent. if needed; but that the State may secure certain benefit from the sale of its lands under a credit system, the purchaser is bound to effeet annual improvements. All metals, preeious or other, go to the purehaser. The title to real estate from the crown is by registration, of whieh the purehaser gets a certifieate in simple form. This system is popular, for it is ready and inexpensive at the outset, and is returnable to the registration offiee for record on it of all subscquent dealings, or for substituted eertifieate, or certificate as needed, in the court of sales. At the close of 1874 the value of landed property, whieh had passed under it, amounted to £9,260,186. Adjoining eolonies have adopted this law.

The settled portions of the colony of South Australia are seetioned off into eounties, and these eounties, when arable cultivation rcquires it, are subdivided into hundreds, whose municipal governing bodies can be eleeted for loeal publie works and edueation. Outside the hundreds, in the southern portion of the eolony, the publie lands are left for purely pastoral oeeupation, for which fourteen or twenty-one years' leases ean be proeured at moderate rents, regulated mueh by distanee from ports of shipment, except that, both as to publie lands inside or outside the hundreds, rights to search for and work minerals are readily granted. The rent of a mining lease is fixed at ten shillings an aere per annum, and fourteen years' term, renewable.

For the northern territory of South Australia, with its tropieal climate, the land laws are modified. Land there is open for selection and sale at 7*s*. 6*d*. per acre, or for lease over ten years at 6*d*. per acre per annum. And, for the speeial growth of sugar, cotton, tea, rice, and tobaceo, seleetions varying from 320 to 1280 acres ean be made at a rental of 6*d*. per acre per annum for five years, when, if the land has been inclosed and one-half under eultivation, a free grant is procurable.

In 1872 South Australia erected 1973 miles of telegraph wire aeross her territory, and, at a eost of £350,000, conneeted Australia with India and Europe.

Commission from SOUTH AUSTRALIA (ADELAIDE) to the International Exhibition:

HIS EXCELLENCY, SIR ANTHONY MUSGRAVE, C. M. G., Chairman.

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HON. H. E. BRIGHT, M. L. C., J. P., Commissioner of Public Works.
HON. JOHN CROZIER, M. L. C., J. P.
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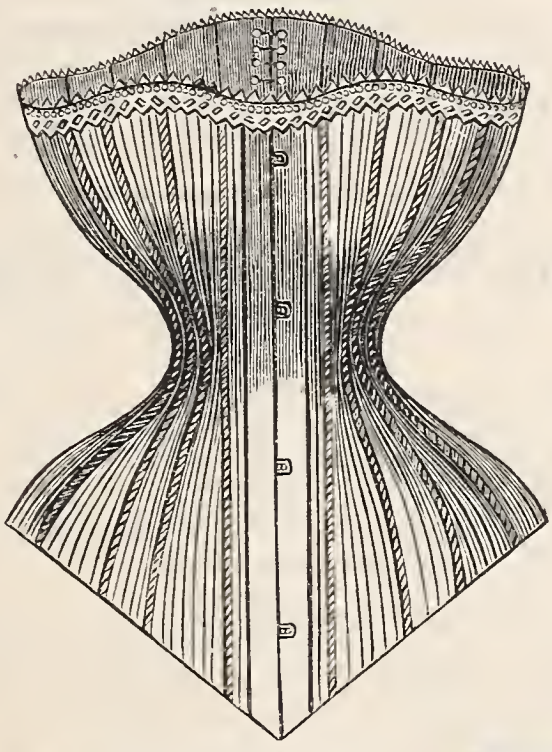
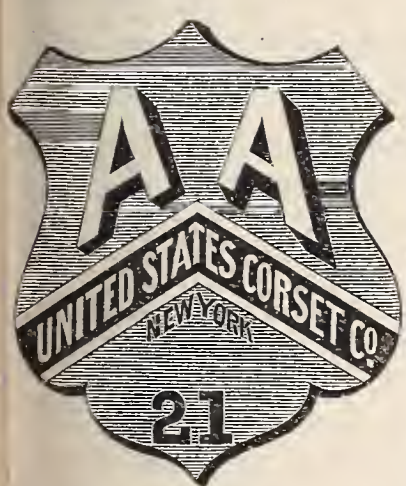


The Loom can be seen weaving these Corsets in Machinery Hall.



1st. Because they are **perfect in fit,** while flexible to the natural movements of the form. 2d. They are **stylish, durable, and luxurious to wear.** 3d. Being **woven without seam,** and in **perfect symmetry of shape,** their **stay properties** are unapproached. Our new **improved** qualities have one of the labels here printed in **Gold and Black**—take no other—cut these out and compare—beware of counterfeits—The **perfect form** which our goods have was never produced by weaving until the invention of our

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No.	CURES	CENTS.
1.	Fever, Congestion, Inflammations	25 or 50
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7.	Coughs, Colds, Hoarseness, Bronchitis	25 " 50
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11.	Suppressed Menses, Scanty, or Delaying	25 " 50
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14.	Salt Rheum, Eruptions, Erysipelas	25 " 50
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23.	Scrofula, Swellings and Ulcers	50
24.	General Debility, or Physical Weakness	50
25.	Dropsy, Fluid Accumulations	50
26.	Sea-Sickness, Nausea, Vomiting	50
27.	Urinary Diseases, Gravel, Renal Calculi	50
28.	Nervous Debility, Seminal Weakness	$1 00
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31.	Painful Menses, Pruritus	50
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☞ **These Cases and Medicines are sent by express or mail, free on receipt of the price.**

SOUTH AUSTRALIA.

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Minerals, Ores, Stone, Mining Products.

1 Clark, F., & Sons, Adelaide.—Iron and copper ores; bismuth. 100

2 Balhannak Mining Co., Adelaide.—Iron and copper ores; bismuth. 100

3 North Yelta Mine, W. Adelaide.—Iron and copper ores; bismuth. 100

4 Moonta, Wallaroo, and other mines, W. Adelaide.—Iron and copper ores; bismuth. 100

5 Crabb, R. S., Adelaide.—Copper and malachite from the Burra Burra mine, W. Adelaide. 100

COLLECTIVE EXHIBIT OF AURIFEROUS QUARTZ FROM THE NORTHERN TERRITORY OF SOUTH AUSTRALIA, BY THE COMMISSIONERS FOR THE FOLLOWING OWNERS. 100

6 Auliffe, I. H., W. Union Mine.

7 Becker, I., Yam Creek.

8 Brese & Starke, Extended Union Mine.

9 Caledonia New Amalgamated Co.

10 Golden Stream Claim.

11 Griffiths, W. K., South Union Mine.

12 Grove Hill Co.

13 Gunn, J. H., Britannia Reef.

14 Lewis, John, Pine Creek.

15 Bernardo, M., Pine Creek.

16 New Telegraph Co.

17 Sandy Creek Claim.

18 Shepperd, E., John Bull Reef.

19 Sandy Creek Puddling Co.

20 Tripp, J. P., Lady Alice and Union Reef.

21 Union Prospectors Co.

22 Whitelaw, E. H., Pine Creek

23 Westcott, J. S., and Wisendunger, I., North Union Mine.

24 South Australian Commissioners, Adelaide.—Marble, sandstone, and slate from quarries in W. Adelaide. 102

Chemical Manufactures.

25 Barnard, George L., Adelaide.—Olive oil. 201

26 Davenport, Samuel, Adelaide.—Olive oil. 201

Yarns and Woven Goods of Vegetable or Mineral Materials.

27 Knight, J. G., Adelaide.
a String made from human hair. 229
b Native bag used by Lubras (women). 230

Clothing, Jewelry, and Ornaments, Traveling Equipments.

28 Steiner, Henry, Adelaide.
a Shell necklace, gold brooch and earrings; shell brooch and earrings set in gold. 253
b Silver-mounted emu vases and ornaments; silver oxidized metal-figured piano candlesticks. 254

29 Davenport, Samuel, Adelaide.—Emu eggs made up in imitation of jewelry. 253

30 Nitscke, W., Adelaide.—Copper vase, cross, and pipe; silver cups made from a dollar and a five-franc piece; teapot made from a shilling. 254

31 Knight, J. G., Adelaide.—Aboriginal ornaments from the northern territory o South Australia. 254

32 Steiner, Henry, Adelaide.—Silver-mounted emu eggs inkstands. 254

33 Wendt, J. M., Adelaide.—Silver-mounted emu egg inkstand. 254

34 South Australian Commissioners, Adelaide.—Skins of indigenous birds and animals of South Australia made into muffs, collarettes, etc. 256

Military and Naval Armaments, Ordnance, Fire Arms, and Hunting Apparatus.

35 Knight, J. G., Adelaide.—Aboriginal weapons from the northern territory of South Australia. 269

Hardware, Edge Tools, Cutlery, and Metallic Products.

36 South Australian Commissioners, Adelaide.—Iron castings made from West Adelaide ore. 283

Educational Systems, Methods, and Libraries.

37 South Australian Commission, Adelaide.—Herbarium, comprising specimens of all the known plants indigenous to South Australia, prepared by Dr. Schomburgk, director of the Botanic Gardens at Adelaide. 301

38 Adelaide Museum, Adelaide, F. G. Waterhouse, curator.—Collection of birds, mammals, reptiles, skins of animals, and eggs of South Australia. 301

Engineering, Architecture, Charts, Maps, and Graphic Representations.

39 South Australian Commissioners, Adelaide.—Statistical records and maps relating to South Australia, compiled by the Surveyor-General. 335

Photography.

40 Scott, G. B., South Australia.—Photograph of northern territory of South Australia. 430

41 South Australian Commission, Adelaide, South Australia.—Photographs descriptive of town, pastoral and farming life in South Australia, the Adelaide Botanic Gardens, suburban views and mining. 430

Machines, Tools, Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.

42 Saunders, Robert, Manager of the Burra Burra Copper Mine, W. Adelaide.—Model of improved ore dresser. 505

43 Hancock, H. R., Moonta Copper Mines, West Adelaide.—Jigging machine. 505

Arboriculture and Forest Products.

44 Wilke, H., & Co., Port Adelaide.—Barks for tanning; ground and chopped mimosa (black wattle), and ground acacia. 600

45 Hardy, Arthur, Mt. Lofty, W. Adelaide.—Cork from tree raised from an acorn imported from Spain in 1864. 600

46 Davenport, Samuel, Adelaide.—Woods, useful and ornamental. 600

47 South Australian Commissioners, Adelaide.
- *a* Woods, useful and ornamental, from the northern territory of South Australia, forwarded by J. B. Scott, government resident; woods from the neighborhood of Adelaide. 600
- *b* Fungi, supplied by W. B. Hughes, northern territory of South Australia. 604
- *c* Red berries (seeds of the creeping licorice), and corkscrew pine seeds, from J. E. Kelsey and W. B. Hughes, northern territory of South Australia. 605

48 Knight, J. G., Adelaide.—Bark from the northern territory of South Australia. 602

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49 South Australian Commissioners, Adelaide.—Wax models of fruit taken from originals grown in South Australia. 610

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50 Carling, Thomas, Adelaide.—Wheat. 620

51 Riggs, John, Adelaide.—Wheat. 620

52 Young, C. B., Adelaide.—Wheat. 620

53 South Australian Commissioners, Adelaide.
- *a* Wheat, barley, oats, and rye. 620
- *b* Peas. 621
- *c* Linseed; hemp, rape, sunflower, prairie and rib grass seed. 624

54 Kelsey, J. E., Mt. Gambier, Adelaide.—Hops, grown in volcanic soil. 623

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55 Cardwell, Robert, Port Essington, northern territory of South Australia.—Trepang, cured at the fishery, Port Essington, northern territory of South Australia. 644

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56 Kemp, W., Adelaide.—Sheepskin mats. 652

57 Angas, J. H., Collingwood, West Adelaide.—Sheepskins; skins of the spotted emu, and other animals indigenous to South Australia, made up in designs. 652

58 South Australian Commissioners, Adelaide.
- *a* Dressed skins of the kangaroo, wallaby, and other indigenous animals. 652
- *b* Emu eggs. 653
- *c* Raisins, plums, figs, and currants. 656
- *d* Wines. 660

59 Davenport, Samuel, Adelaide.
- *a* Skins of native animals and birds. 652
- *b* Emu eggs. 653

60 Bagot, E. M., Adelaide.—Extract of meat. 656

61 Hardy, Thomas, Adelaide.
- *a* Raisins and currants. 656
- *b* Wine. 660

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63 Dunn, John, & Co., Adelaide.—Flour. 657

64 Magarey, Thomas, & Co., Adelaide.—Flour. 657

65 Cowan, Thomas, & Co., West Adelaide.—Flour. 657

66 Gilbert, Joseph, Pewsey Vale, Adelaide.—Wine. 660

67 Clark & Crompton, Adelaide.—Wines. 660

68 Richman, J. W., Watervale, South Australia.—Wines. 660

69 Quick, H. C., Marden, Adelaide.—Wines. 660

70 Ross, R. D., Highercombe, Adelaide.—Wines. 660

71 Kaines, John H., Adelaide.—Wines. 660

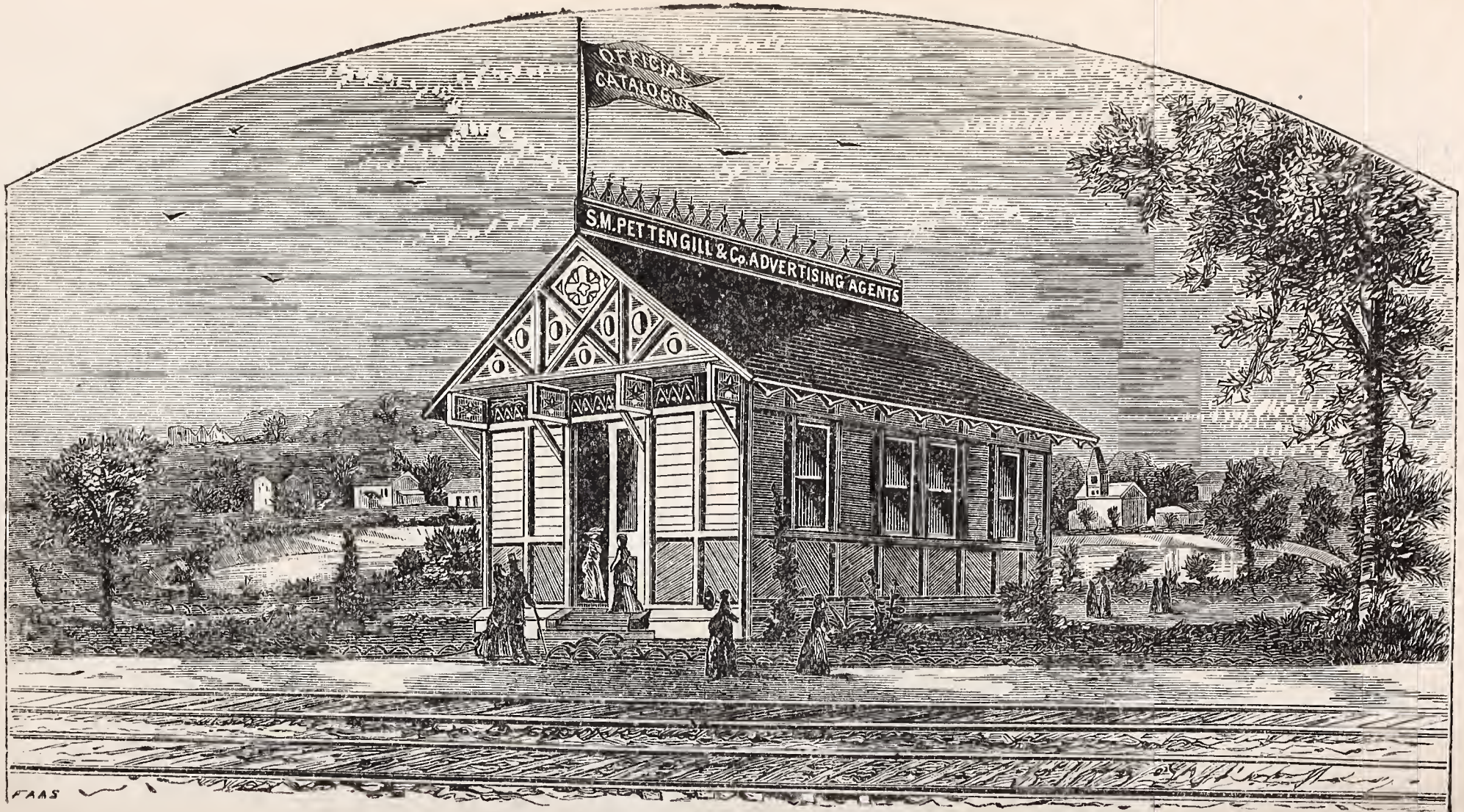
72 Auld, Patrick, Magill, Adelaide.—Wines. 660

73 Barnard, G. L., Adelaide.—Wines. 660

74 Hornabrook, C. A., Adelaide.—Wines. 660

75 White, George, Rosefield, Adelaide.—Wines. 660

76 Baker, Isabella, Morialta, Adelaide.—Wines. 660



OFFICE OF THE CENTENNIAL CATALOGUE COMPANY AND S. M. PETTENGILL & CO., ADVERTISING AGENTS.

Between Machinery Hall and Offices of the Centennial Board of Finance.